



**7TH BIENNIAL DEHCHO REGIONAL
WILDLIFE WORKSHOP
OCTOBER 21-22, 2014**





"I'm really glad what I heard today" Samuel Gargan.

"It's all about the youth. They are going to be taking over as leaders someday" Melaine Simba.



"This is a really good workshop" Darrell Betsaka.

"This workshop was really important because it was an opportunity to provide feedback and input on studies that are taking place" Terri Simba.



"I think you guys are doing a good job" Charlie Tale.

DEHCHO REGIONAL WILDLIFE WORKSHOP
21-22 OCTOBER, 2014
FORT SIMPSON RECREATION CENTRE

2014 Wildlife Workshop Delegates

Rufus Sanguiez – Jean Marie River First Nation
Richard Sanguiez – Jean Marie River First Nation
Dennis Nelson – Acho Dene Koe Band
Joe Bertrand – Acho Dene Koe Band
Samuel Gargan – Deh Gah Gotie Dene Band
Victor Constant – Deh Gah Gotie Dene Band
John McLeod – Fort Providence Métis Local
Charlie Tale – Pehdzeh Ki First Nation
Edward Cholo – Liidlíi Kue First Nation
Jonathan Konisenta – Nahanni Butte Dene Band
Darrel Betsaka – Nahanni Butte Dene Band
Terri Simba – Ka'a'gee Tu First Nation
Melaine Simba – Ka'a'gee Tu First Nation
Sonia Frise – West Point First Nation
Brian Deneyoua – West Point First Nation

Environment & Natural Resources (ENR)
Representatives

Nic Larter – Manager, Wildlife Research and Monitoring (Dehcho)
Danny Allaire – Wildlife Technician II (Dehcho)
Carl Lafferty – Superintendent (Dehcho)
James Hodson – Wildlife Biologist, Environmental Assessment/Habitat
(Yellowknife)
Karl Cox – Wildlife Technician III (South Slave)

Nahanni National Park Reserve Representative

Douglas Tate – Conservation Biologist (Fort Simpson)

Canadian Wildlife Service Representative

Rhiannon Leshyk – Junior Landbird Biologist (Yellowknife)

Government of British Columbia Representative

Jeremy Ayotte – Provincial Co-ordinator BC Sheep Separation Program (Salmon Arm); also representing the Wild Sheep Foundation

Participants

Ernest Tsetso – Liidlíi Kue First Nation
Robert Norwegian – Liidlíi Kue First Nation
Wilbert Antoine – Liidlíi Kue First Nation
Gerald Antoine – Liidlíi Kue First Nation
Herb Norwegian – Liidlíi Kue First Nation
Fawna Erasmus – Liidlíi Kue First Nation
Shane Kwasney – Liidlíi Kue First Nation
James Mouse – Liidlíi Kue First Nation
David Battista – Fort Simpson
Chuck Blyth – Fort Simpson
Jim Deneron – Acho Dene Koe Band
Steve Gooderham – ENR Fort Simpson
Ryan Boxem – Parks Canada, Fort Simpson
Audrey Steedman – Parks Canada, Fort Simpson

Environmental Stewardship Class – Thomas Simpson School

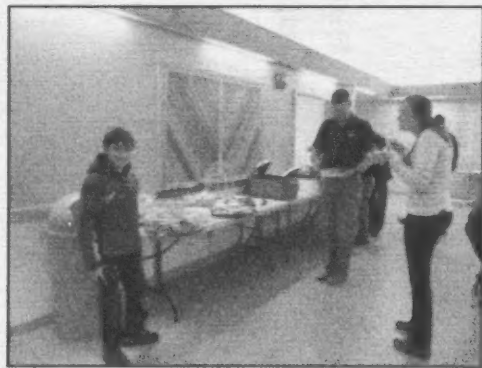
Perrin Dempsey – Fort Simpson
Nathaniel Tsetso – Liidlíi Kue First Nation
Charles Blondin – Liidlíi Kue First Nation
Marshal Kwasney – Liidlíi Kue First Nation
Rhonda Grossetete – Jean Marie River First Nation
Katrina Deneron – Sambaa K'e Dene Band
Alex Redmon – Fort Simpson

Thaddeus Timbre – Liidlí Kue First Nation
Sakaeah Nahanni– Liidlí Kue First Nation

Sound provided by MJC Audio (Ronnie Antoine)
Translation provided by Betty Hardisty & Mary-Jane Cazon
Catering provided by Bompas Elementary School
Title page wildlife art www.wpclipart.com



This was the first time that we had the Environmental Stewardship Class from Thomas Simpson School attend our workshop. We hope to have them participate in future workshops.



Bompas Elementary School catered the workshop.



The workshop had many posters covering the walls; copies of pamphlets and reports were made available.

The Department of Environment and Natural Resources (ENR), Dehcho Region held a Regional Wildlife Workshop at the recreation centre in Fort Simpson on 21-22 October, 2014. This was the seventh regional wildlife workshop; the first was held September 2002 with the others occurring in Octobers 2004, 2006, 2008, 2010 and 2012. During the first workshop a decision was made to hold future workshops in October because a later date would not conflict with the fall harvest and would permit increased opportunities for harvesters to participate in the workshop. The key results of the 2012 workshop were direction for the various wildlife research programs, the communicating of results, and a list of 12 action items. The goals of the 2014 workshop were to:

- 1) provide an update on the status and results of ongoing wildlife research programs that ENR had been conducting since the 2012 workshop,
- 2) provide an assessment of how well ENR had addressed the 12 action items that had been identified from the 2012 workshop,
- 3) provide a forum for other agencies, organizations, and ENR research programs to present their findings,
- 4) provide an open forum for the discussion of any and all regional wildlife issues, and
- 5) ensure a continued open dialogue about wildlife research, monitoring programs, and wildlife issues between all Dehcho First Nations (DFN) and ENR.

Aircraft going mechanical delaying the arrival of three presenters for day 1, and the first winter storm of the season arriving on the afternoon of day 2 made for a very dynamic and concise workshop. The agenda on day 1 was constantly changing. Eventually some presentations had to be moved to day 2, with some day 2 discussions occurring on day 1. With the impending winter storm and the need for many delegates to drive back to their home communities, delegates energetically attacked the revised day 2 agenda to ensure action items were tabled in a timely fashion. During day 1, ENR made a presentation detailing and critiquing how they had addressed each of 12 action items arising from the 2012 workshop. This was followed by presentations on the Dehcho youth ecology camp/pilot trail camera program and the Dehcho boreal caribou program (by ENR Fort Simpson), monitoring the Howard's Pass area with remote cameras (by Parks Canada), the Dehcho moose program (by ENR Fort Simpson), and the Dehcho wood bison program (by ENR Fort Simpson and Fort Smith). The day concluded with an open floor round table discussion on the wood bison program and related wood bison issues. Similar to previous workshops, the walls of the recreation centre were covered with numerous posters showing the results of a wide variety of additional wildlife research programs being conducted in the Dehcho. There was also a table where copies of reports, scientific papers, and plain language results from wildlife work done in the Dehcho were available. The posters and the report table became focal points during coffee and lunch breaks. Day 2 started with three presentations: range management planning for boreal caribou (by ENR Yellowknife), songbird monitoring in the Dehcho (by CWS Yellowknife), and disease transmission from domestics to wildlife (by BC Government). Following this presentation the floor was again open to round table discussions. Many delegates and

audience participants provided comment and feedback on a wide variety of wildlife-related topics. Delegates and audience participants had a lot to say about the trail camera pilot study, the boreal caribou, and moose programs. As in previous years the workshop was very well attended despite inclement weather affecting air travel. ENR would like to take this opportunity to thank all of those First Nations who sent delegates to participate in the workshop and the guest presenters who had to endure grueling air/ground travel adventures to participate.

What follows is the final workshop agenda, the key discussion items and comments from each of the presentations and round table discussions during the 2-day workshop and the list of action items generated from the workshop for ENR to pursue. At the request of delegates we have also included a listing of the action items that were tabled at all previous workshops.



Presentation on disease transmission from domestic animals



Information sharing



Day 1 – 21 October, 2014

- 0915 Opening Prayer – Charlie Tale
- 0920 Welcoming Comments - Carl Lafferty, Regional Superintendent, ENR
- 0925 Introductions
- 0930 Review of 2012 workshop action items - Nic Larter, ENR
- 0950 Dehcho Youth Ecology Camp/Trail Camera Trials - Danny Allaire,
ENR
- 1010 Coffee Break
- 1040 Dehcho Caribou Program - Nic Larter, ENR
- 1145 Lunch catered by Bompas Elementary School
- 1330 Effects of Road Development on Caribou: Monitoring with Remote
Cameras in the Howard's Pass Area - Doug Tate, PC
- 1350 Dehcho Moose Program - Nic Larter, ENR
- 1430 Coffee Break
- 1455 Dehcho Bison Program – Nic Larter/Karl Cox, ENR
- 1530 Round table discussions on bison (management planning groups,
allocation of tags), the need for collars prior to a population survey
- 1610 Closing comments and Closing Prayer – Darrell Betsaka

Day 2 – 22 October, 2014

- 0905 Opening Prayer – Edward Cholo
- 0910 Range Management Planning for Boreal Caribou in the Southern NWT – James Hodson, ENR
- 0950 Bird Monitoring in the Dehcho – Rhiannon Leshyk, CWS
- 1020 Coffee Break
- 1035 Separation part of the Solution; Disease Transmission from Domestic to Wildlife – Jeremy Ayotte, BC Provincial Coordinator Sheep Separation Program/Wild Sheep Foundation
- 1100 Round table discussions on regional wildlife issues/concerns especially the risks of domestic animals to wildlife, ecology camps and expanding trail camera coverage
- 1155 Lunch catered by Bompas Elementary School
- 1315 Round table discussions about boreal caribou program, future collar deployments, working with other jurisdictions (surveys, collar monitoring), and the use of ultrasound as a non-invasive tool
- 1335 Round table discussion on moose research program, sampling for the contaminant study, lack of funding and need for interim small-scale moose survey
- 1355 Round table discussions to determine action items
- 1440 Workshop closing comments and Closing Prayer – Sam Gargan

Day 1

Presentation on 2012 Action Items

There was limited discussion from this presentation largely because the 12 action items had been addressed by the Department of Environment and Natural Resources (ENR) over the past two years. A number of the action items had been directed toward the scheduling of wildlife surveys which ENR had been able to accommodate for the most part with their future work plans and funding. There was an extended discussion about the importance of providing biological samples from harvested moose to ENR in order for them to reassess the level of contaminants found in moose in the Dehcho; to date harvesters had provided few samples. The lack of samples was disappointing especially given the number of sample kits that had been provided to individuals and band offices, the advertising in newspapers, and reminders in local newsletters. Delegates wanted ENR to keep promoting the need for samples to be provided and indicated they would spread the message. There was also some discussion about how the iridium GPS collar had performed. ENR had no issues with the collar and had acquired two more to be deployed in February 2015. Delegates wondered if with the recent technological advances there were smaller transmitting units, that were not collars, which could be used on caribou. ENR indicated that collar weights had decreased somewhat since the collaring program began. No matter how small units get, there is still the issue that animals have to be handled to deploy any unit. With the current collars, they provide the needed information and last for average 60 months. This means a minimal number of individuals have to be captured.

Presentation on Dehcho Youth Ecology Camps/Pilot Trail Camera Program

The presentation detailed the 2013 ecology camp and to a lesser extent the 2014 Dehcho Youth Boat Trip which had been a collaboration of DFN, Dehcho Aboriginal Aquatic Resource and Oceans Management (AAROM), Dehcho Land Use Plan Committee (DLUPC) and the Deh Gah school in Fort Providence.

The 2013 Ecology Camp was held at Cli Lake; ecology camps in 2007 and 2009 had been held at the same location. The presentation provided: 1) some background history of the camps which had run annually from 2003-2013, 2) information on the challenges of acquiring funding since the program began in 2003, 3) information on the challenges of scheduling the camps to maximize the number of youth available to attend, and 4) fulfilling the goal of having the camp held in different locations in the Dehcho. The presentation highlighted the wide range in activities that youth have been exposed to in ecology camps, both traditional and scientifically based. It was noted that the more recent partnership with the AAROM program had increased the variety of activities youth had been exposed to and had helped secure more stable funding. Since 2004, camps have been held at different locations in the Dehcho; no camps were held in the same location in consecutive years. Beside Cli Lake, camps have also been held at the Trout Lake Fire Base, the mouth of the Trout River, Paradise Creek, Sandy Creek, Rabbitkettle Lake and Ekali Lake.

This past summer was the first year that ENR wasn't directly involved in a summer youth ecology camp since 2003. DFN had taken the lead on a new vision of youth on the land programs. Their collaboration with Dehcho AAROM, DLUPC and the Deh Gah school had provided the opportunity for

students to receive three career and technology studies (CTS) credits from courses including First Aid, Environmental Stewardship and basic water related science concepts that were part of the program. Therefore, ENR assistance was not requested. The camp was originally planned as a canoe trip, but due to logistics was changed to a boating trip. Forest fires near the river delayed starting the trip.

There was a brief discussion on a trail camera pilot program recently initiated by ENR. Cameras had been installed and tested at two different locations, one near Wrigley and another near Jean Marie River. Cameras are motion sensitive, can take pictures at night and record the date, time and temperature with each photo. ENR wanted to see how well the cameras performed at providing photos of wildlife, especially predators, on game trails. This information could provide a measure of frequency of trail use. The cameras had generally performed well and ENR was planning on increasing the number of cameras deployed in the region. It was noted that one camera had gone missing, but that camera sets had been unmarked.

Delegate comments

There were comments that the boat trip had occurred too late in the summer, and should have happened earlier. The timing wasn't right, but because of the course offerings the schedule was not flexible enough to change the timing. Delegates explained how traditional storytelling in the evenings let youth learn about the past, where their relatives had been born and lived, and about place names along the Mackenzie River. There was lots of interest from youth about the more cultural aspects of the course and of about finding out who they really were. It was reiterated that earlier in the summer the weather is more agreeable for travelling from Providence to

Jean Marie River. ENR indicated they are still an interested partner in summer youth ecology program and are highly supportive of programs that provide youth an opportunity to get out on the land.

There was certainly interest in expanding the trail camera program to include more cameras in other parts of the region. Delegates said they would be useful in finding out about new rarer wildlife (like cougars) and wildlife use of game trails. It was suggested that advice from local harvesters would be useful in deploying additional cameras. ENR suggested that they could get a trail camera for each Dehcho First Nation, and that each camera location would be placed with the advice of local harvesters to optimize animal sightings. Delegates were highly supportive of such a program.

Presentation on Dehcho Boreal Caribou Program

The presentation provided an update on the population monitoring program. It highlighted the fact that the Dehcho boreal caribou program is the longest running program in the north (10 years) and one of the longest running programs across Canada. A critical difference between the Dehcho study and those from other southern Canada is that boreal caribou in the Dehcho are living in relatively pristine habitat, whereas boreal caribou habitats in the south had already been fragmented by resource development prior to the onset of long-term studies.

Caribou collared in the study range over some 80,000km² into northern British Columbia and Alberta. Of 269 possible calving events of collared females during the 10 year study, 93% have produced a calf; wearing a collar does not seem to have stopped caribou from getting pregnant or bringing calves to term. At First Nation's request 10 collars and 12 collars were deployed on female boreal caribou in 2013 and 2014,

respectively, to maintain ≥ 30 collared females during the calving season. Collars were deployed throughout the Dehcho region except in 2013 when Pełdzeh Ki First Nation requested no collaring in their traditional areas. No collars released this past summer so all 31 female caribou collars are active going into the winter; in summer 2015 three collars are programmed to release. ENR plans to deploy a maximum of nine collars in February 2015, each First Nation partner will be provided with one collar and the opportunity to designate whether or not they would like to deploy it in their traditional areas, and where. If collar(s) are not deployed in a traditional area they will be available to another First Nation. This arrangement has worked very well and received lots of positive feedback since the last workshop. Given large wildfires over the past two summers collared caribou could provide insight on how these fires have affected seasonal caribou range use.

Since the last workshop, there has been low calf recruitment for both 2012/13 and 2013/14 and low adult female survival in 2013/14. This has resulted two successive years of negative estimated growth rates. Heavy, wet snowfall during the 2012 calving season and a longer, delayed 2013 calving season likely affected calf survival and recruitment. On a more encouraging note, all 31 collared females had calves during the 2014 calving season.

Three caribou apparently died of starvation during summer 2013. Non-predation deaths in summer are rare. Starvation deaths in summer 2013 were also reported in the South Slave study and in studies in northeastern British Columbia. In all cases it looked like the caribou had just curled up and died; most carcasses were intact with the collar still around the neck. Some caribou that starved in NEBC had been exposed to a disease not previously reported in boreal caribou. ENR forwarded blood samples from 40 boreal caribou collared in the Dehcho to determine if this disease is also

present here; results are pending. On a more encouraging note, during summer 2014 no collared females died from any cause, the first time recorded in the study.

A new non-invasive method of measuring caribou rump fatness during capture operations was discussed. It uses a portable ultrasound device and has been used extensively in northern Ontario, British Columbia, and Alberta. In light of recent summer mortalities, a mid-winter measure of fatness comparing individual animals and animals between study areas (jurisdictions) would be useful.

Boreal caribou and wolves have been collared in NEBC over the past few years. Wildlife does not respect jurisdictional boundaries. A number of caribou they collared have frequented areas south and east of Trout Lake. Some wolves collared near Fort Nelson have roamed hundreds of kilometres through the Arrowhead and the Redknife River areas with at least one wolf remaining in the Arrowhead. Biologists in BC provide us with information about collared wildlife moving into NT and we reciprocate. Both jurisdictions are conducting similar studies on boreal caribou so together we can look at the complete picture. BC biologists have requested the opportunity to classify all their collared caribou, including those located in southern NT, during their annual spring classification survey. The survey is similar to ENR's; it determines how many caribou calves have survived the winter. ENR feels this is a reasonable request and wants to know what First Nations think about it. The Dehcho Boreal Caribou Working Group (DBCWG) has discussed their request. They support the request as long as the BC biologists notify ENR and any affected First Nations of the date for the planned survey in advance.

The work of the DBCWG was discussed including their recommendations on handling caribou respectfully, important boreal caribou habitat to be considered for fire suppression, on continued monitoring of the Dehcho boreal caribou population and working co-operatively with other boreal caribou researchers. Some DBCWG members accompanied ENR staff to the 15th North American Caribou Workshop in Whitehorse. They presented posters on their working group and the boreal caribou program, and got to interact with many caribou people. They received a lot of positive feedback from other aboriginal groups who were impressed with the long term Dehcho program, and the amount of First Nation involvement from the start of the program.

Delegate comments

Delegates mentioned the recent declines in the barren-ground caribou populations and the fact that we should learn from past management mistakes for caribou in general. Delegates commented that we had to all work together to save not only boreal caribou but all wildlife for future generations. First Nations rely on wildlife for their way of life. It's more than a wildlife management issue, it is a survival issue. There was concern raised that development in northern British Columbia and Alberta continued to occur at a breakneck pace and how the north will deal with all these encroaching development pressures. Protection for boreal caribou and other wildlife was part of the Dehcho Land Use Plan and there was a need for harmonized land protection and management with Dehcho First Nations and the Government of the Northwest Territories. It was noted that recent climate change events, like unpredictable heavy snowfalls in May, have affected boreal caribou populations. Also the extensive forest fires over the

past summer affected the distribution of all wildlife along the Mackenzie River this fall.

Presentation on the Effects of Road Development on Caribou: Monitoring with Remote Cameras in the Howard's Pass Area

Caribou in Nahanni National Park Preserve (NNPR) are part of the Northern Mountain ecotype of woodland caribou and are a Species at Risk Act (SARA) listed species of Special Concern. They are a high priority species for the Nah?a Dehé Consensus Team; monitoring caribou is a priority of NNPR. Traditional knowledge and data from collared caribou show that Redstone, South Nahanni and Lower Nahanni populations of caribou use the South Nahanni watershed. There is increasing development, especially the Howard's Pass access road to Chihong Canada Mining Ltd. (formerly Selwyn Resources). To help understand the potential effects of road development NNPR is using remote cameras to monitor specifically caribou use (and other wildlife) near the road.

The study design was prepared by two university PhD candidates with experience in remote camera monitoring and caribou research, including work in the Sahtu region and the proposed research was reviewed by members of the Nah?a Dehé Consensus Team. Cameras would be placed along six transects running perpendicular to the road corridor. Camera 'traps' would capture movements on the road, and at specified distance intervals from the road (0-4km away). Images taken the first year will be at lower level of road use; images from subsequent years with increased road traffic can be compared to see if there are changes in caribou use of the area.

Cameras with lithium batteries were set to take one photograph per day at noon and whenever the motion sensor was triggered five images were

taken. Cameras could operate at -40°C, would last at least for a year and could also take night photos with infrared flash (invisible to animals). Six transects of different length ran perpendicular to the road corridor. Each transect was subdivided into 3-9 units. Using a helicopter, suitable wildlife trails were located in each unit and one camera was deployed. A total of 44 remote cameras were deployed July-August 2013.

Cameras were revisited in July 2014 to collect memory cards, install new cards, and replace batteries. Cameras worked well overall. Only two cameras had to be replaced (one pulled open by a bear), three had to be remounted, and some had been buried by snow in late-winter. Some needed to have vegetation pruned to prevent triggering the motion sensor and taking many images of nothing. Caribou were photographed at least once on 34 cameras; caribou were recorded at all distances from the road (0-4km). There were more caribou photos in October, April, and May. Other wildlife photographed included moose, wolf, fox, grizzly bear, marten, wolverine, willow ptarmigan and northern harrier.

Delegate comments

There was certainly interest in the photographs that the cameras were providing but there were no delegate comments for this presentation.

Presentation on Dehcho Moose Program

At the 2012 Wildlife Workshop there was overwhelming support for ENR to conduct another contaminant study. The previous study was during 2004-07. Delegates wanted to know if there had been changes in the level of contaminants in their primary country foods. For the new study there was consensus harvesters would be reimbursed \$75.00 for a full set of samples,

sample sets without kidneys would be accepted, sample kits will be provided, and harvesters from Sambaa K'e were encouraged to provide samples since they were not involved in the original sampling program.

ENR reiterated that moose remained a healthy food choice and that smoking exposes one to more cadmium than eating moose organs. Over 100 sample kits had been provided during the past 18 months for the study but only 10 sets of samples had been provided to ENR by September 2014; far short of the goal of 45-50 samples. Despite advertising and articles in the Drum newspaper, community newsletters, and advertising at band offices samples were not being collected and turned in. Samples were not even provided from the two moose harvested during a school out-on-the-land program. This was a lost learning opportunity for youth, not only to see how moose is butchered in a traditional fashion, but also see how and why certain parts of the moose are sampled for studies of animal health and condition. It was noted that during the past three weeks ENR received nine more samples but that samples were still lacking from Sambaa K'e, Pehdzeh Ki, and Acho Dene Koe traditional areas. ENR stressed that once sampling from submitted bones was complete any remaining bone material was returned back to the land, showing respect for the harvested animal. It was noted that the study and need for more samples is timely. A similar study in Quebec had just hit the wire service with a sensational title that did not do justice to the facts and small sample size that followed in the article. ENR wanted to avoid this with its current study.

A large-scale geospatial moose survey is still in the books for 2017/18 following similar surveys in 2003/04 and 2011/12. A small-scale monitoring survey is scheduled for November 2015, two years prior to the large-scale survey. However, the monitoring survey was scheduled with the expectation

that most of the samples required for the contaminant study would have been collected and analyzed. This is not the case. Lab analyses are expensive. The money was made available for this fiscal year but the samples have not been forthcoming. Every sample provided to date has been forwarded for lab analyses but we need twice the number of samples we currently have. ENR will continue to collect samples through the 2015 fall hunting season. However, funding next year will be especially tight partly from the costs of fighting fires this past summer. ENR is committed to completing the contaminant study. Funding for the moose program next fiscal year will prioritize this study, forgoing the moose monitoring survey if need be. ENR would like to thank the Acho Dene Koe Band for advertising the moose sample collection program in their monthly newsletter.

ENR informed delegates of an incident at Pointed Mountain in January 2014 where a cow and calf moose had become trapped in a gated fenced off settling pond and the calf had died. It was determined that the moose got into the settling pond area where a snow drift had covered part of the fence. 15°C weather over a two day period melted most of the snow trapping the moose inside where they were later discovered by Pointed Mountain staff who notified ENR in Fort Liard. The cow was released but the calf had died. Cattails had been eaten in the vicinity of the calf carcass. ENR recovered the carcass 1 February and kept it frozen until a full necropsy was conducted in Fort Simpson by an ENR vet on the calf 10 February. Necropsy results indicated that the calf moose had very limited fat reserves, was likely in a weakened condition, and had regurgitated some of its stomach contents into the windpipe and choked to death. Heat stress could not be ruled out as a complicating factor.

Delegate comments

Delegates wanted more information about cadmium and what moose samples provided information about. ENR stated that cadmium was a naturally occurring element in the environment and also is found in cigarettes. Cadmium is found in willows and accumulates over time in willows. Willows are eaten by moose. Moose accumulate cadmium in their organs as they get older. Cadmium levels in moose organs are much higher than in moose muscle and it is the cadmium levels in organs which we need to be aware of. One would absorb far more cadmium from smoking one pack of cigarettes a day than from eating an entire moose kidney. Now, if one ate an entire kidney every week for a year there may be a concern. ENR collects teeth to determine age. Some contaminants like cadmium increase with increasing age. The kidney, liver, and muscle provide information on contaminants; levels are always higher in the organs and most studies compare levels found in organs. Muscle is specifically used to look at radionuclide levels. Liver is specifically used to look for persistent organic pollutants (like DDT). Moose pellets provide information on diseases and parasites. The fat around kidneys and in the bone marrow provides an indication of moose health and condition. The more fat the better condition.

One delegate asked if the moose meat texture was recorded while moose samples were being provided. They stated that meat from moose shot in Swan Hills was "squishy" not firm, and suspected that this was from contaminants. ENR indicated information on firmness of meat was not collected. Examining the marrow and kidney fat from moose provides an indication of health. Determining contaminant, pollutant, or radionuclide levels requires moose tissue samples. ENR encourages harvesters to provide samples from animals that do not appear normal.

Presentation on Nahanni Wood Bison Program

As part of the NWT Bison Strategy, community wood bison discussion groups were established in Fort Liard and Nahanni Butte in 2012 to work with ENR on management planning for the Nahanni wood bison population. ENR met with each group twice a year. Common themes of discussion have been the need for another population survey sooner than later, bison in communities, on airstrips, damaging property and bison harvesting. The first draft of the management plan is anticipated in 2015.

Sex and age classification surveys continue to be conducted annually from the river in mid-July when bison frequent exposed sandbars. Since 2009 biologists from BC have participated in our survey and in 2013 we participated in the BC survey of the Norquist population. These joint ventures ensure consistency in classifying bison between jurisdictions. Maps of survey results are provided to First Nations after the survey is completed. An average of 152 bison have been observed on surveys. Overwinter survival of calves during the past two years has been similar to the 56% average from 2002/03 to 2013/14. Similarly, over the past two years, the number of calves per 100 adult females (cows) is near the 41 calf per 100 cows average for 12 years. Of note is the high calf:cow ratio in 2012 with an above average overwinter survival for this cohort.

Nahanni bison mortalities are documented from drowning events, vehicle collisions and legal harvest. In both 2012 and 2014 a male bison was discovered that had died as a direct result of fighting during the rut. It is not known how many bison drown annually in the Liard River.

Bison collars deployed in winter 2011 have since stopped transmitting; location data are currently being analyzed. ENR planned on deploying collars during the 2014 classification survey prior to the

scheduled March 2016 population survey. Unfortunately these plans were scuttled by extremely high temperatures and wildfires closing highway access. We still hope to deploy the three collars we have before the end of the winter.

After a number of bison-vehicle collisions on the Liard Highway (#7) during fall 2004, the Department of Transportation (DOT) erected signs in 2005 in areas suggested by ENR. Since 2004, bison have increased their range northward along #7 by 60km to Poplar River. Currently, few of the signs erected in 2005 remain and vehicle collisions continue. ENR is working with DOT to increase the number of warning signs on #7. The large NT signs are being used by BC and AB for consistency. ENR is trying to have smaller signs on #7 match the small signs used in BC for both accuracy and consistency between jurisdictions.

There was a discussion about the Bison Control Area (BCA) which was created in 1987 to provide a buffer to protect healthy disease-free populations (Mackenzie and Nahanni) from diseased populations in and around Wood Buffalo National Park. The South Slave region monitors the BCA; any bison found in the area are removed. Highway signposts, with a toll-free number, mark the area. ENR depends upon the public to call in any observations in the BCA. In winter, aerial patrol flights are conducted over the BCA. In January 2014, ENR received reports of bison observed near Axe Handle Creek. Staff from Fort Providence shot and butchered a bison located in the area; meat was distributed locally. Subsequent air surveys did not locate bison in the area.

Delegate comments

Delegates questioned whether the Mackenzie population had been affected by the population bottleneck; the population was established with only 16 bison. Do the bison have good immune systems, when there are from a few bison? ENR indicated that both the Mackenzie and the Nahanni populations started from a very limited number of individuals. The Mackenzie population increased to about 2500 animals by the 1990's. There is no evidence of inferior immune systems in either population.

Delegates wanted to know about potential impacts to the Mackenzie population after the extensive wildfires over the past summer. The population had already become smaller after the anthrax outbreaks in 2012. Would the fires make more prairies for bison? ENR indicated that it was quite possible that some bison could have succumbed to the rapid moving intense fires. Because of extensive smoke it was difficult to locate bison during summer surveys and no bison are collared in this population. There is no population estimate since the one after the anthrax outbreak which estimated approximately 700 bison. It is likely that bison are well dispersed throughout their extended range. Depending upon how intense fires were and what water levels were these fires could benefit bison by creating more extensive grass and sedge dominated meadows (prairies). As long as these meadows do not become saturated they could provide expansive areas for bison feeding in both summer and winter. If the quality of meadows became more like that found during the 1980s and 1990s then there would certainly be the potential for the population to increase as it did in the 1980s. This is speculation; we currently do not know what the impact of the fires has been.

Delegates indicated that it would good to get an idea of just how many bison were out there after the fires. One delegate stated he was on a bison

board and that we just don't know where they stand (bison population) but there seems to be no money available to do any surveys until March.

Round table discussions on bison (management planning groups, allocation of tags), the need for collars prior to a population survey

Delegates thought it was a good idea to have the next Nahanni bison population survey in March 2016 and not any later. There was agreement that there would need to be some bison collared before the survey was conducted. Delegates wanted as accurate a survey as possible.

There were concerns raised about bison in communities including: bison damaging vehicles by rubbing or licking them, bison pats in yards and around town (unsanitary as well as a nuisance), the smell when there are lots of them in town, the concern of big animals in town when and where kids go to school (children's safety). One delegate noted that bison have been in the communities since the 1960s and that he didn't remember anyone being attacked by a bison. When it comes time for them to go they go, they don't get all riled up. They only get all riled up and annoyed if they are harassed. It was noted that communities with bison could learn from each other. Bison in Fort Providence recognize the vehicle used by the one hired hazer. As soon as they see it coming they leave. The vehicle has its lights flashing. Four-wheelers are also used to deter bison. Providing two bison tags to each community won't affect the bison population.

There was a discussion about the current seven tag allocation for Fort Liard and Nahanni Butte. Currently, the band sends ENR a letter indicating they approve of a tag to be issued to a named harvester. Delegates thought that seven was a reasonable number of tags to be allocated annually and to keep those quotas because they maintained a stable population. Currently

there is no time limit for a harvester to use the tag. A delegate from Fort Providence said there was a three day limit to get a bison when they were allowed to hunt bison. Delegates felt that a 30 day limit on tags was fair. If the tag had not been used in 30 days it would be relinquished. This way other interested people could get a tag. It is not fair for someone to hog a tag. It was noted that with multiple tags issued it was important to make sure how many tags had been utilized and how many were out that had not been utilized. There was little discussion about how the seven tags should be divided up between Fort Liard and Nahanni Butte. As long as Nahanni Butte had access to one or two of the seven tags a year, that was fine.

Delegates indicated that it would be nice to have more bison warning signs on the Liard Highway. There were not enough there now. Drivers need to be made aware that bison can be on the highway. This is a public safety issue. They wondered if there would be more of a response from DOT if the request for signs came from First Nations rather than ENR.

Delegates indicated that the electric fence around the Fort Liard airport had been working fine and they were glad that it was erected. They wondered why there wasn't a similar fence around the Nahanni Butte airport. There was a need to have a fence there too. ENR indicated that they had put up an experimental electric fence around part of the Nahanni Butte airport 2010. The fence did deter bison and subsequently DOT erected an electric fence around the Fort Liard airport. ENR believed that a similar fence was going to be installed around the Nahanni Butte airport by DOT. Currently that hasn't happened.

Day 2

Presentation on Range Management Planning for Boreal Caribou in the Southern NWT

Boreal caribou are listed both nationally and territorially as a threatened species. These listings are habitat driven, where landscapes with greater disturbance lead to more predation on boreal caribou. The national recovery strategy has two key objectives: 1) maintain or achieve self-sustaining populations throughout the current distribution, and 2) protect critical habitat; a legal requirement that 65% of boreal caribou habitat must remain undisturbed. Environment Canada's demographic model suggests that at 65% undisturbed habitat, local populations have a 60% of being self-sustaining. As of 2011, there was 69% undisturbed habitat in the NT boreal caribou range. Undisturbed habitat is defined as habitat that has not burned in the past 40 years and is >500m away from anthropogenic footprint. Most of the disturbed habitat is due to fires (23% of the 31%). Monitoring programs in different areas of NT suggest that the one continuous population of boreal caribou was likely self-sustaining when the recovery strategy was released. However local populations in the southern NT, where there is more habitat disturbance, were not doing as well as their counterparts in the north, where there was less habitat disturbance.

ENR needs to develop a range plan for boreal caribou in the NT, describing how to maintain the 65% undisturbed habitat. This plan should tell us where and how this habitat should be maintained. It is a basically a plan for managing the cumulative effects of natural and anthropogenic disturbance and will require input from co-management partners. ENR has

produced a guidance document which proposes six regional plans based on administrative regions which when combined provide a territorial-wide plan. Regional plans would balance the responsibility of maintaining or achieving the 65% undisturbed habitat goal, they would be developed collaboratively with a 5-year planning horizon. Areas of the range would be ranked in terms of their importance to caribou, and there would need to be enough low, medium, and/or high importance areas to meet the undisturbed habitat goal. The location of undisturbed habitat is expected to change over time, reflecting the dynamic nature of the boreal forest. The plans will be reviewed and updated every five years and will account for new fire disturbance, new human disturbance, old fires (>40 years old) disturbance features which are no longer considered as disturbed boreal caribou habitat, and updated information on caribou distribution, population trend and habitat selection.

A preliminary analysis following the high wildfire summers of 2013 and 2014 indicate that currently the amount of undisturbed habitat is slightly <67% over the NT boreal caribou range. The Dehcho, South Slave, and North Slave (Wek'eezhi) regions currently have less than 65% undisturbed habitat with a higher proportion of human disturbance than other regions. ENR has suggested that regional range plans be developed for these three regions first. There are currently boreal caribou monitoring programs in both the South Slave and the Dehcho. The Dehcho has the largest and longest running program. ENR plans on conducting workshops with communities, the Dehcho Boreal Caribou Working Group, renewable resource boards and councils and other government departments during winter 2014-15 to refine boreal caribou range, identify areas of importance to boreal caribou and identify ways to monitor local trends and develop successful regional plans.

Delegate comments

Delegates commented on how protecting 65% undisturbed habitat for boreal caribou was related to the current protected lands by Nahanni National Park Reserve, proposed regional protected areas and the Dehcho Land Use Plan (DLUP). Will the range plan be another land protection initiative or be a duplicate process to the DLUP? The DLUP focused on protecting traditional areas from development. Development will occur. It will be hard to find agreement in deciding important areas to protect from development. The challenge will be to try and minimize the impacts of development and save areas for boreal caribou.

It was indicated that "undisturbed habitat" has a specific meaning in the federal recovery plan which may be different from the DLUP. There will be a need to look at the conservation zones in the DLUP and how much of important boreal caribou habitat is protected by them in relation to the 65% undisturbed habitat target. Additional areas may need to be put aside from development on a temporary (5 year) basis to meet the regional range plan target.

Presentation on Bird Monitoring in the Dehcho

A part of Canadian Wildlife Service's (CWS) mandate is to conserve migratory bird populations. The forest bird program is designed to study forest bird populations in Canada. Forest birds are generally sensitive to environmental change and they can be used as indicators of change in other species and ecosystems. Many forest birds are also economically important they are pollinators and they can help controlling insect pests. CWS monitors migratory bird populations. Eighty seven percent of the forest birds breeding in the NT are migratory; the remaining 13% are resident.

CWS has been monitoring study sites in the same locations across the country over multiple years. Each site is visited for a set amount of time each year and at different time intervals (e.g. every 2, 3 or 5 years). Point counts are conducted at each site to count all birds observed and heard. After conducting the same survey over multiple years CWS can generate trends in species population size. Trends in bird populations provide clues on how birds are doing (e.g. increasing, decreasing or remaining stable) and ultimately, on whether the environment is changing.

There are over 250 species of forest birds breeding in the NT. The only forest bird monitoring program led by CWS is taking place in Fort Liard. The Fort Liard Long-term Monitoring program completed its 17th year this summer. Point counts are conducted at 255 locations twice in the month of June. Since 1997, almost 7000 birds were counted from 76 bird species.

Most bird monitoring programs are conducted in southern Canada. These areas tend to be highly disturbed and there are concerns about the status of forest birds breeding in the northern portion of the boreal forest. NT and southwestern Nunavut contain 18% of the boreal forest. However, the Fort Liard Long-term Monitoring program is the only long-term bird monitoring program in the north for which results are available. Furthermore, it is unclear whether results from Fort Liard, that is considered a biodiversity "hotspot", can be considered representative of the the rest of the boreal portion of NT.

CWS is proposing a new forest bird monitoring program in the Edézhíe Candidate wildlife area. The goal would be to start the Edézhíe forest bird monitoring program next summer. In the proposed Edézhíe area, CWS is recommending to establish 33 permanent study sites each comprised of nine point counts (total of 297 point counts). All study sites would be

accessible by helicopter only. The Edézhie forest bird monitoring program could provide an opportunity to complement results provided from the Fort Liard Long-term Monitoring program and offer a better understanding of the number of forest bird species and their status in the central portion the boreal region of NT. The data could also provide insight into how climate change, natural disturbances (e.g. fires and insect outbreaks), and human activities occurring outside the species breeding range (e.g. on their wintering grounds) affect bird communities. CWS is currently working with Dehcho First Nations (DFN) on finding ways to create helicopter landing pads, collect the data, and on project approval. CWS and DFN did a preliminary reconnaissance survey over two days this October to determine how much clearing would be required for helicopters to safely land at the 33 study sites.

Challenges of working in the north include a small road network, large expense for helicopter use, and required expertise to identify forest bird species by sound and sight. CWS is trying to start a community-based monitoring program which involves setting up recording units near NT communities to record all singing birds each year from mid-May to the end of June. The main benefit of this program is that it requires no experience in identifying birds and a lot of data could be collected over multiple locations and multiple years at the same time.

Delegate comments

One of the delegates asked if CWS was trying to get schools involved in the community-based monitoring program, this would provide a good opportunity for teachers to take out children to learn about birds. CWS thought it was a good idea and they were going to try to get in contact with NWT schools before next summer. There were concerns raised over the

proposed Edézhíe work. Birds surveys were conducted on the Edézhíe before, why was there a need to start a monitoring program there? CWS explained the Edézhíe bird survey was done over one summer. The proposed program will be a long term survey that will help identify any changes that may be taking place on the landscape. A delegate asked if CWS did any winter bird surveys. CWS explained they concentrate their efforts on the spring and summer time when there is a lot of bird diversity.

Presentation on Separation as part of the Solution; Disease Transmission from Domestic to Wildlife

The Wild Sheep Foundation (WSF) foundation sent a representative from BC to give a presentation on domestic sheep and goats and how they can spread diseases to wild sheep and mountain goats. WSF would like to see a policy developed to restrict domestic sheep and goats from the Mackenzie River to the Yukon border. Contact between domestic and wild sheep in the south has decimated wild sheep. It needs to be emphasized that Dall's sheep in NT are immunologically naïve compared to wild sheep in the south. If domestic sheep disease reaches these northern wild sheep, the impact will be worse than what we have witnessed in the south. The disease is preventable through spatial and temporal separation of the two species. Low farming pressure in NT should mean little resistance to new legal policy.

The disease that is decimating wild sheep is a respiratory disease; contact can result in an entire wild sheep herd die-off. Domestic sheep and wild sheep are attracted to each other; pneumonia outbreaks are difficult to manage after contact has happened. Southern bighorn sheep populations have been decimated by contact to domestic sheep. There are multiple cases

throughout the US and BC of examples of entire wild sheep herds dying off after contact with domestic sheep. Transplants from BC and AB have replenished some US states with wild sheep. There has been a lot of research done on disease transmission, immunity, vaccines and sheep habitat, but not a lot of action to stop contact.

There are no enforcement policies or legislation for wildlife officers to use. Fencing is expensive and not always effective. Government attempts to balance protecting wild sheep while supporting the domestic sheep industry. Union of BC First Nations Chiefs made a resolution in 2005 to stop the contact between the two species and cited an infringement on traditional rights to harvest wildlife for food. BC farmers have an act called the "Right to Farm" Act that they are using to defend their rights to have domestic sheep and goats farms. The main problem is sometimes these farms are in the vicinity of wild sheep and mountain goats. There is a need to keep domestic sheep and goats out of high risk areas. There have been some documents, user guides and standardized GIS tools developed to support policy makers with good scientific tools.

Wild bighorn sheep populations in the south are scattered and diminishing, in many instances due to this problem. Thin-horn sheep and mountain goat populations in the north are flourishing and are in relatively in pristine condition. There needs to be more public awareness of the threats of the domestic sheep and goat disease. There is a need to develop a policy in NT to prevent contact between Dall's sheep, mountain goat, domestic sheep and goats.

Delegate comments

Delegates were interested in getting a copy of the BC First Nations Chief's resolution. ENR had received a copy of the resolution. Jeremy ensured that copies were made available. A delegate asked where the wild sheep in the NT are and that the First Nations near there should be consulted. Some delegates mentioned that they didn't know much about wild sheep, but they were worried about their impact on other ungulates like moose and caribou.

Some delegates mentioned that they do hunt Dall's sheep but on a limited basis and the traditional harvest is quite minimal. Some delegates were in favour of not letting domestic sheep in communities near the mountains. A delegate was asking if domestic sheep would be able to travel in wild sheep and mountain goat country. The WSF representative indicated that wild sheep rams travel great distances. Wild and domestic sheep are attracted to one another and all it would take is one contact for the respiratory disease to be transferred to NT Dall's sheep. A delegate mentioned that the Dehcho Land Use Plan didn't take into account future domestic farming endeavors into the plan.

Round table discussions on regional wildlife issues/concerns (especially the risks of domestic animals to wildlife), ecology camps, proposed trail camera study

Delegates wanted to get more information about Dall's sheep and on diseases that could be transmitted to wildlife. There was concern about diseases from domestics that would affect other wildlife. It was noted that field guides to common wildlife diseases and parasites were available at the literature table at the workshop and from ENR. Delegates indicated that

domestic animals had been present in some communities and that currently there were chickens being raised in communities near the mountains (Nahanni Butte, Wrigley). They questioned whether chickens posed any risk to wildlife in the NT. Self-sustaining community gardens are being encouraged by the government and possibly in future they may want to expand to hobby farms and other domestic livestock like sheep and goats.

Delegates felt it was very important for ENR to continue to promote youth ecology camps. Learning about medicinal plants should be part of the camps. The combination of traditional and scientific knowledge is really useful for youth, to become one with the land. Youth cannot be connected to the land from a classroom setting but when teaching is on the land there is a better connection; youth pay more attention and they learn more. A delegate was concerned that the youth camps conducted by some local bands and school programs are too short (2-3 days) and they don't have the right people teaching. Youth should be out on the land for extended periods of time, up to 2-3 weeks. The band isn't doing the camps properly. ENR has done a good job when running the camps. ENR indicated that they would try to maintain involvement in future youth ecology camps.

There was an active discussion about trail cameras. Delegates indicated that ENR should have done a better job of notifying respective band offices prior to the initial deployment of two cameras. If people knew they were out on the land they might not have lost one of the cameras. People are driving around out on the land and they don't know about ENR's trail camera program. ENR acknowledged they had rushed the pilot study and communication had been lacking. In future ENR would come to communities to discuss the program with local harvesters. Delegates thought this would be good because ENR could find out the best places to put trail

cameras and harvesters would be aware of the program. Delegates liked the idea of one camera set up in each First Nations traditional area. A delegate from Kakisa suggested placing a trail camera up on the Cameron Hills. Development is happening on the Cameron Hills, would like to know how it is affecting wildlife. Cameras could document the reports of cougars and deer in the area. ENR South Slave staff stated they have a trail camera program and the timber cutting mill company Patterson's is looking into trail cameras to see what is using their cutblocks. Trail cameras have been used in the past to monitor use of decommissioned drill sites near Fort Liard. One delegate mentioned that he traps in the winter and knows of good areas where the animals are using trails that could be good for photos.

Round table discussion about the boreal caribou program, future collar deployments, working co-operatively with other jurisdictions (surveys, collar monitoring), and the use of ultrasound as a non-invasive tool

Delegates discussed the importance of the information the Dehcho Boreal Caribou study was collecting and the need to work with other jurisdictions that are also studying boreal caribou. Caribou do not respect provincial boundaries and we must ensure data on vital rates, like recruitment and survival, are collected on both sides of the border. Delegates were comfortable with ENR's planned collar deployment scheduled for February 2015. Delegates also supported allowing BC biologists to monitor caribou they had collared that had crossed over into the NT. If such caribou were in NT during scheduled BC caribou classification surveys then BC should notify ENR in advance of the survey. ENR could then notify the affected First Nations about the upcoming survey date and location.

There was active discussion about the non-invasive ultrasound device. Delegates agreed that getting a measure of fatness of caribou was useful. There was considerable debate about when was the best time to get a measure of fatness. Some thought that it would be better to measure the fatness of females at the end of the fall rather than in winter. You would know how well prepared they were for winter. If fatness is measured in mid- or late-winter you only know how fat they are after winter. You don't know how much fatness they lost but you do where they stand with a few months to go before calving. There was agreement that if the ultrasound measurements can be made in conjunction with collar deployment then it should be tried this year, and see how it works.

A delegate asked how are caribou chosen to be collared, are the old caribou being picked, they may be susceptible to predation. Is ENR monitoring migration, calving grounds? Is ENR reporting back to First Nations?

ENR tries to collar female boreal caribou that appear healthy and are not too old or too young. We do not want to collar older weak animals that are more susceptible to predation as noted. Migration and calving grounds are certainly monitored for barren-ground caribou as these caribou make large-scale migrations to and from fairly discrete calving grounds. Boreal caribou act more as individuals. They do not demonstrate long distance migrations and at calving time they try to spread out as far away as possible from each other as an anti-predator behavior. ENR analyzes the location data for boreal caribou. Every three months ENR provides all its First Nations partners with a map that shows the range used by each collared caribou over the previous three months. No point location data are distributed at the request of our First Nations partners. Every year ENR compiles a progress

report on the study. The report is circulated to all First Nations partners and is also posted on the ENR website.

Round table discussion on moose research program, sampling for the contaminant study, lack of funding and the need for interim small-scale moose survey

There was discussion about the difficulty in finding moose to harvest this fall along the Mackenzie River from Jean Marie River to Fort Providence. The Mackenzie River water level was very low and many small tributaries had sandbars at the mouths preventing hunters from using them to hunt moose. Usually the water in these small creeks rises in fall with rains but that didn't happen this fall. Also there were huge fires and lots of smoke in the area. Many hunters went north of Fort Simpson to Wrigley this fall for moose.

Some delegates asked if the moose sample collection included the community of Kakisa. ENR South Slave staff stated there was a similar collection from the Fort Providence area and kits were available there. Kits are also available at all band offices in the Dehcho and ENR Fort Simpson. Delegates wanted to know whether they needed to collect all samples requested by ENR and if hair samples could be collected for DNA. Are there other ways to collect information on moose health? ENR explained why the requested moose samples were necessary to assess contaminants, pollutants, and radionuclides in moose and also to provide other information on animal health. Any tissue samples collected could be subsampled for a DNA sample.

Because moose don't have big ranges, delegates wanted to know if ENR needed more than one moose from an area for looking at moose health.

It is necessary to have samples from as many moose as possible harvested throughout the Dehcho region in order to feel confident that the results are representative of moose from the Dehcho in general. The previous study had samples from 43 moose harvested throughout the Dehcho. For the current study we have samples from 19 moose, but no samples from moose in the Sambaa K'e, Pehdzeh Ki, or Acho Dene Koe traditional areas. ENR is encouraging harvesters in these areas to provide samples for the study.

One delegate indicated that he had been heavily involved in both the moose sampling program (past and present) and moose monitoring surveys. He indicated that whenever he provided samples where the moose kidney was fresh (had not been frozen) ENR staff were extremely happy to receive them. ENR explained that with a non-frozen kidney they could use half for the contaminants analysis and the other half could be used for a histological analysis. A histological analysis is a more detailed look at individual cells and tissues within the kidney to see if they are healthy or if they show physical signs of damage. ENR acknowledged that providing fresh unfrozen kidneys was not always easy and therefore had not been requested. No histological analyses were done on kidney samples from the last study. Histological analysis of kidneys from moose harvested in the Mackenzie Mountains has shown kidney damage consistent with cadmium poisoning. Could ENR use half of a frozen kidney for contaminants and the other half for histology? Unfortunately not, once a kidney has been frozen the cells have ruptured and it can't be used for histology.

There was concern reiterated about few moose along the Mackenzie River and harvesters were wondering if ENR had plans to conduct a moose survey south of the Horn Plateau and north of the Mackenzie River this winter. Currently ENR has no plans for additional wildlife surveys. ENR

South Slave region has plans to survey the bison control area this winter which covers some of this area. ENR Dehcho region has plans to conduct a moose monitoring survey in winter 2015 pending funding is available. The high costs of fighting wildfires last summer will certainly impact funding over the short term, and air surveys are costly ventures. Although delegates supported the scheduled moose monitoring survey, they were aware that the costs of conducting a survey and completing the contaminant study would be high. There was agreement that the contaminant study would be given highest priority for funding.

General Comments made at the Workshop

A delegate mentioned that there were a lot of dead birds near Wrigley when they went hunting this spring. There was a big snowfall that killed a lot of migratory birds.

There comments about the change in fire suppression tactics. In the 1970s fires were fought right away, now when they see a smoke they take time before they fight it or not. That delay lets the fire get too big to fight. That happened this fire season. It was noted that fires could last through the winter, especially when they burn as extreme as they did this summer. They can start up again in spring.

Climate change, how it could affect wildlife, and how it occurred in many different ways that we were quite powerless over was mentioned. The need for continued bridging of ecological scientific knowledge and traditional knowledge to look at the big picture was reiterated. Knowing how and why animals lived where they did is important. Traditional areas that people used to use in the past had a purpose, they were good for fishing,

animals were plentiful and sometimes there were good logs for a cabin. They were locations of convenience where there were animals.

There were comments about development being kept far away from lakes, rivers and other water sources. ENR has a mandate to protect wildlife. Does the GNWT have a position on fracking? There was concern that fracking introduces all kinds of chemicals underground and into water sources.

There were comments about the new Wildlife Act that would soon be implemented, how it would deal with resident hunting and how First Nations relied on the Wildlife Act for their right to harvest wildlife.

ENR South Slave staff indicated that they were planning on collaring caribou north of the Mackenzie River this winter, but they were unsure if they would find caribou in the area with all the big fires that occurred this summer. A delegate mentioned that it would be a good idea to learn more about the Edézhíe and wildlife on the Horn Plateau. In the past there were few poplar trees on the Horn Plateau, now there are a lots. There used to be mostly boreal caribou on the Horn Plateau, now there are a lot more moose.

Delegates were pleased that this type of meeting was happening every two years and wanted workshops to continue. People learn a lot from these meetings and share a lot; everyone here cares about wildlife. This is a good meeting, there is a lot of material available to take back home. This workshop is really important because it provides an opportunity for feedback and input into studies that are taking place right now. Government people need to continue to talk together with people from the communities and to listen to their concerns. There is a lot of good work being done on wildlife. It is important to have delegates from all First Nations at this meeting. Delegates wished that youth involvement in the workshop was higher. It was

good to see the TSS high school class attending some of the workshop. Youth will be the future leaders.

Prior to closing the workshop there was a healthy discussion on what should be key action items for ENR to follow up on after the 2012 workshop; 12 action items were agreed upon and follow:

Action Items from October 2014 Workshop

1. ENR to ensure the Final Report of this workshop is distributed to all First Nations on a timely basis.
2. ENR to secure funding to host another Regional Wildlife Workshop at about the same time of year in 2 years; the format and the arrangement of covering the costs for 2 delegates per First Nation to attend the workshop should remain the same.
3. ENR should ensure a wide distribution of Final Report of this workshop including having it posted on the ENR website.
4. ENR should conduct a Nahanni bison population survey in March 2016 and have collars deployed on bison prior to the survey.
5. ENR should pursue boreal caribou range management planning, with the Dehcho regional management plan as first priority.
6. ENR should pursue a trail camera program where one camera per First Nation partner is deployed on a trail within their traditional area. Its location will be suggested by the First Nation.
7. ENR should make completion of the moose contaminant study the highest priority in the moose program, with the small-scale moose survey planned for November 2015 of lesser priority.

8. ENR should deploy up to 9 collars (including 2 iridium units) on boreal caribou in the Dehcho in February 2015. Each First Nation partner will have one collar made available to them so they can advise ENR on where to deploy that collar in their traditional areas.
9. ENR should pursue taking ultrasound measures of fatness from captured caribou during the February 2015 collar deployment. Pending discussion of the results of this trial, ultrasound measures may be continued in future deployments.
10. ENR should facilitate classification surveys of BC collared caribou by advising local First Nations if, when, and where such surveys would occur on their traditional areas.
11. ENR with DOT should pursue increasing the number of bison warning signs on the Liard Highway.
12. ENR should actively explore avenues to separate domestic animals (primarily sheep and goats) from areas inhabited by wild sheep and goat populations; not permitting domestic sheep and goats west of the Liard River was suggested.

A listing of action items from previous wildlife workshops.

2012 workshop

1. ENR to ensure the Final Report of this workshop is distributed to all First Nations on a timely basis.
2. ENR to secure funding to host another Regional Wildlife Workshop at about the same time of year in 2 years; the format and the arrangement of covering the costs for 2 delegates per First Nation to attend the workshop should remain the same.

3. ENR should work with DFN to seek funds to ensure future summer youth ecology camps, exploring all options to offer CTS credits for youth attending the camps. Camp policies should continue to be “tailor” made for each camp and reviewed prior to each camp to minimize difficulties for facilitators.
4. Delegates were unanimous in supporting the development of a Nahanni bison management plan and want ENR to proceed in this direction.
5. ENR should ensure a wide distribution of the Final Report of this workshop, including having it posted on the ENR website.
6. ENR should provide the Dehcho First Nations Leadership with the list of the workshop action items in time for their winter leadership meeting.
7. ENR should conduct another large-scale geospatial moose survey along the Mackenzie and Liard River Valleys no later than November 2017.
8. ENR should reduce the frequency of small-scale moose monitoring surveys to one every two or three years; additional consultation with First Nations is necessary to determine a schedule for the next small-scale survey.
9. ENR should actively seek to collect biological samples from harvested moose in order to reassess the level of contaminants in moose; harvesters will be reimbursed at \$75 per complete set of samples.
10. ENR should schedule another Nahanni Bison population survey in the next 2-3 years and consult with local First Nations regarding collaring bison prior to the survey.

11. ENR should deploy up to 10 collars on boreal caribou in the Dehcho in February 2013. Each First Nation partner will have one collar made available to them so they can advise ENR on where to deploy that collar in their traditional areas.
12. ENR should try to deploy the one "high tech" collar they acquired on a female boreal caribou in February, 2013.

2010 workshop

1. ENR to distribute the Final Report of this workshop to First Nations on a timely basis.
2. ENR to secure funding to host another Regional Wildlife Workshop in 2 years; the timing of the workshop should remain.
3. ENR should work with DFN to seek funds to provide future summer youth ecology camps, and if possible extend the length of such camps. Camp policies should be "tailor" made for each camp or at least reviewed prior to each camp to lessen difficulties for facilitators.
4. ENR should try to communicate with the schools concerning ecology camps; Career Technology Studies (CTS) credits for high school students may encourage more students to participate in these camps. The number of students participating in camps is sometimes an issue.
5. ENR should ensure a wide distribution of the Final Report of this workshop, not limited to the agencies and First Nations participants.
6. ENR should post the final report of the 2010 Regional Wildlife Workshop on the ENR website. They should try to post final reports of previous workshops.
7. ENR should provide hard copies of the final report for the 2010 Regional Wildlife Workshop to Dehcho First Nations Leadership in

time for their winter leadership meeting, posters should be made available as well.

8. ENR should distribute the large scale geospatial moose survey maps to their First Nations partners so local harvesters can update survey blocks and modify the survey area for a more accurate moose survey.
9. ENR should conduct another large scale geospatial moose survey November 2011 along the Mackenzie and Liard River Valleys covering a similar area to surveys in winter 2003/04.
10. ENR should endeavour to deploy as many of the 7 available collars on Nahanni wood bison prior to conducting a Nahanni wood bison population survey in March 2011.
11. ENR should extend the current moose and bison surveys south of 60°N latitude to include traditional harvesting areas of the Acho Dene Koe Band in northeastern British Columbia.
12. ENR should forward letters to First Nations requesting them to provide ENR with suggestions and guidance for future deployment of collars on boreal caribou. There will be no collaring in February 2011 but at least 1 collar will be available for each First Nation to deploy in February 2012. ENR should keep a minimum of 25-30 active collars on boreal caribou for each calving season, depending on mortalities through 2011. ENR will request First Nation permission to deploy collars in areas where mortalities have occurred.
13. ENR should follow up with the Dehcho First Nations' Grand Chief on the formation of a working group for boreal caribou.
14. ENR requests that Dehcho First Nations submit names for membership on the Nahanni Bison Management Plan committee.

15. ENR should get hard copies of the South Slave moose survey circulated to all First Nations involved, once it is available to the general public.
16. ENR should get hard copies of the northeastern British Columbia boreal caribou and moose survey reports distributed to appropriate Dehcho First Nations.

2008 Workshop

1. ENR to distribute the Final Report of this workshop to First Nations on a timely basis.
2. ENR to secure funding to host another Regional Wildlife Workshop in 2 years; the timing of the workshop should remain.
3. ENR requests that Dehcho First Nations submit names for membership on the Nahanni Bison Management Plan committee.
4. ENR should work with DFN to seek funds to provide future summer youth ecology camps, and if possible extend the length of such camps.
5. ENR should ensure a wide distribution of Final Report of this workshop, not limited to the agencies and First Nations participants.
6. ENR should look into making a brief presentation of the Final Report of this workshop at a DFN Leadership meeting, likely in January 2009.
7. ENR should endeavour to deploy as many of the 11 available collars on Nahanni Bison as soon as possible.
8. ENR should extend the current moose and boreal caribou programs to include traditional harvesting areas of the Katlodeeche First Nation.
9. ENR should forward letters to First Nations requesting them to provide ENR with suggestions and guidance for future deployment of

collars on boreal caribou. Information requested would include where to deploy collars, how many collars to deploy, type of collars to deploy and whether to pursue the deployment of collars in February 2009. (8 collars will be available).

10. ENR should follow up with the Grand Chief on the formation of a working group for boreal caribou.
11. ENR to provide workshop to Jean Marie River and Trout Lake on fur handling and wolf snaring techniques.
12. ENR to follow up with ITI regarding access to Western Harvester Assistance Program for Jean Marie River and distribute information on moose and caribou hide program.
13. ENR to include discussion of predator management programs when developing bison management plans and the boreal caribou action plans.

2006 Workshop

1. ENR to ensure that the final report of the workshop is distributed to all First Nations in a timely basis.
2. ENR to ensure that these workshops become a biannual event, and that participation by elders and youth of the region is actively supported and encouraged. The current timing is good.
3. ENR to ensure that a bison management plan is developed for the Nahanni Bison Herd.
4. ENR to initiate discussions with trappers in the Dehcho communities to stimulate cooperation in designing and conducting basic research and monitoring programs.

5. ENR to continue seeking proposals for hosting the summer youth ecology camp so that the camp curricula can be varied and can be held in different locations in the Dehcho.
6. ENR to seek funding for conducting an additional youth ecology camp during a different season of the year, preferably starting with a winter camp when students could be taught trapping.
7. ENR to actively pursue a collaring program for Nahanni Bison to provide baseline information on movement and range of distribution.
8. ENR to pursue the idea of a working group for boreal caribou in the Dehcho by presenting it as a topic for discussion at the November, 2006 DFN leadership meeting in Fort Providence.
9. ENR to ensure that the 5 GPS collars and all available satellite collars are deployed on boreal caribou throughout the region in January 2007.
10. ENR to ensure that once the results of the elemental analyses from moose organs are received, that they are analyzed and a plain language report of the results is circulated as soon as possible.

2004 Workshop

1. ENR to ensure that the final report of the workshop is distributed to all First Nations in a timely basis.
2. ENR to ensure that these workshops become a biannual event, and that participation by elders and youth of the region is actively supported and encouraged.
3. ENR to ensure that a bison management plan is developed for the Nahanni Bison population.

4. ENR to initiate discussions with trappers in Dehcho communities to stimulate cooperation in conducting basic research and monitoring programs.
5. ENR to discuss changes and modifications to the current youth ecology camp location, timing, and format with local communities and DFN and investigate other available option for the camps.
6. ENR to continue to promote and support community wildlife monitoring programs.
7. ENR to support and self-management programs related to wildlife harvest that may be initiated by local First Nations.

2002 Workshop

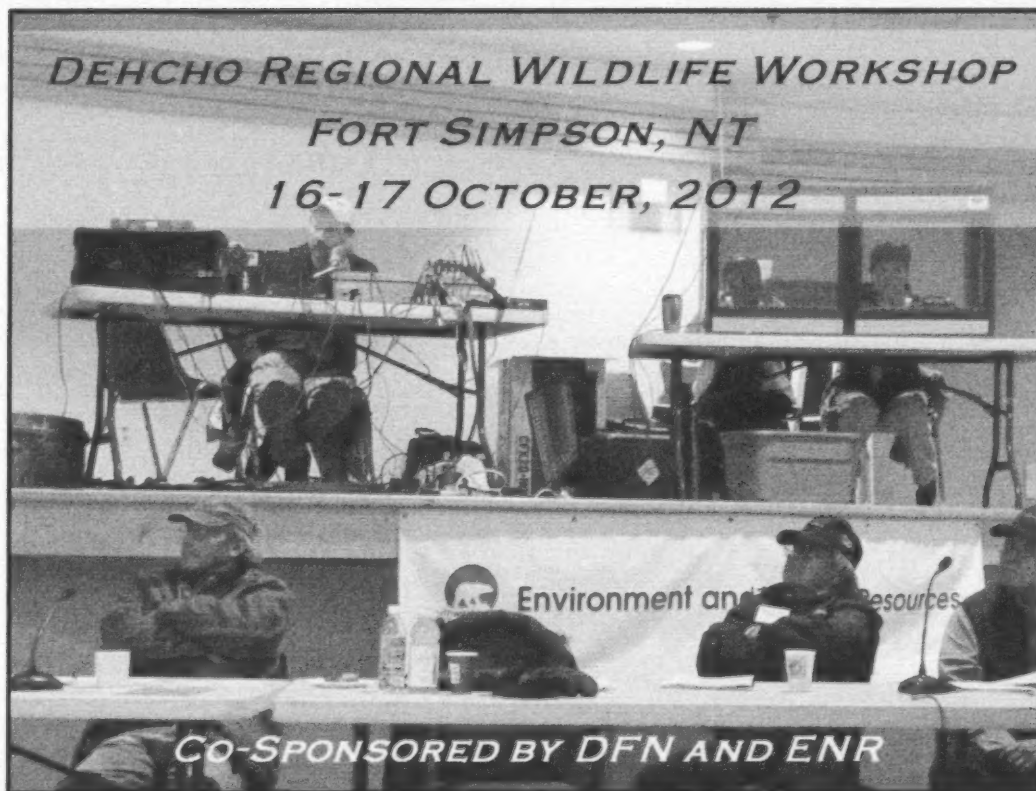
1. ENR to ensure that the summary and hard copy of the presentations covered at the workshop is distributed to all Dehcho First Nations.
2. ENR to arrange meetings and discussions with those First Nations that were unable to send delegates to the workshop (Trout Lake, Kakisa, Fort Liard). For the Kakisa meeting the Regional Biologists from both the South Slave and Dehcho should attend.
3. ENR to circulate letters to schools in the Dehcho indicating that there is now a Regional Biological Program with ENR and that they are available to make school presentations if requested.
4. ENR to explore options and develop a proposal for how a science camp/research station could be established in the Dehcho.
5. ENR to identify ways that moose populations in the Dehcho could be monitored at regular intervals.
6. ENR to identify ways that the Nahanni bison population could be monitored regularly.

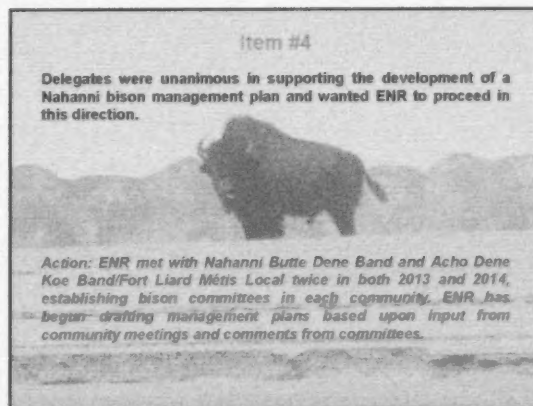
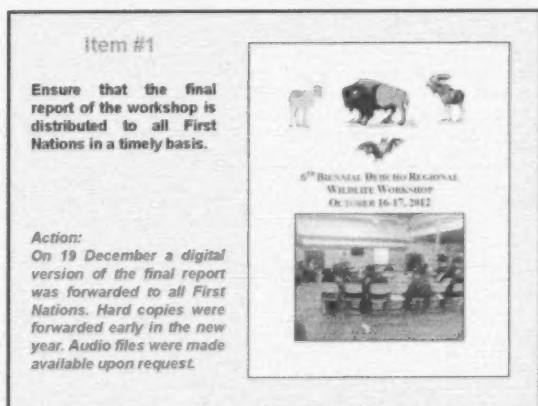
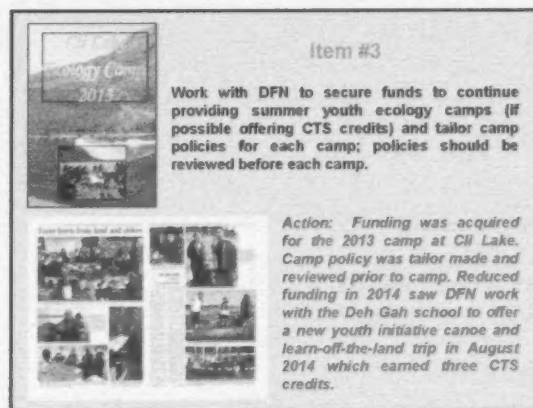
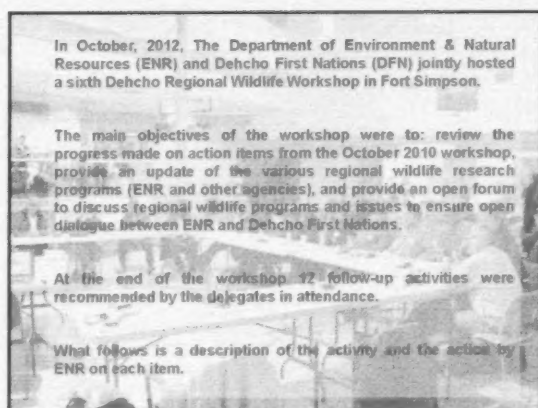
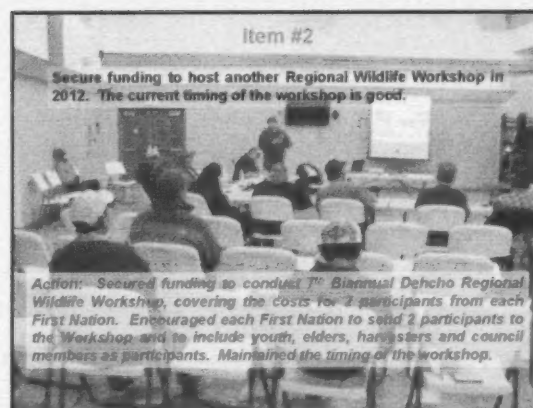
7. ENR to identify ways that the status of boreal caribou in the Dehcho could be clarified and the potential impacts of oil and gas exploration and development on boreal caribou could be studied in the Cameron Hills area and possibly other key areas in boreal caribou range in the Dehcho.
8. ENR to identify ways that community-based monitoring of wildlife health could be implemented in the Dehcho.
9. ENR to identify ways that monitoring the harvest of wildlife in the Dehcho could be enhanced.
10. ENR to identify appropriate indicators for monitoring and assessing environmental and landscape change (including those resulting from climate change) that could be established in the Dehcho.
11. ENR to identify studies that are needed to support protected areas initiatives in the Dehcho.
12. ENR to maintain contact and dialogue with all Dehcho First Nations to ensure that all research and monitoring programs are developed and implemented together.

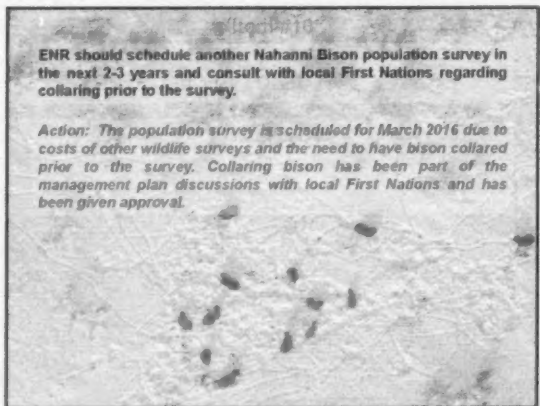
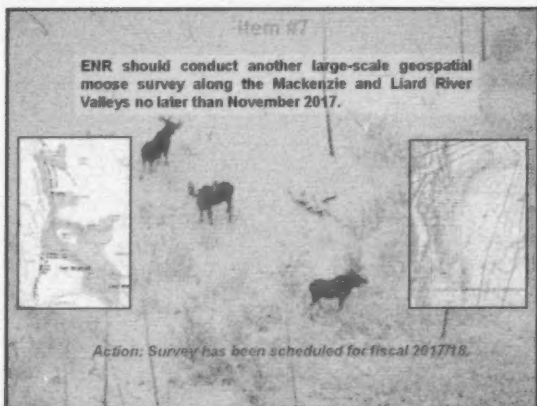
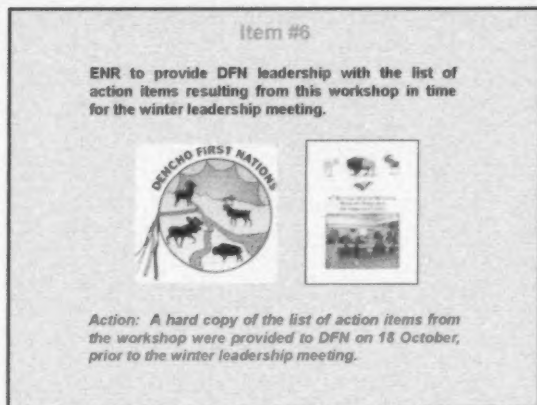
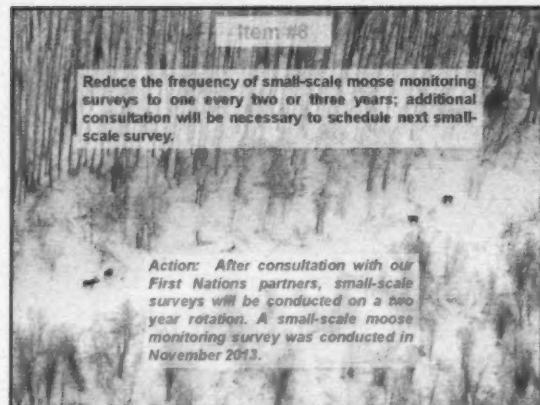
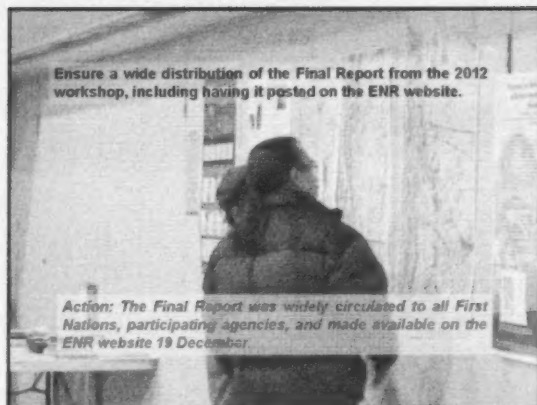
Appendix 1.

Review of 2012 Dehcho Regional Wildlife Workshop Action Items

Presented by Nic Larter, ENR Fort Simpson



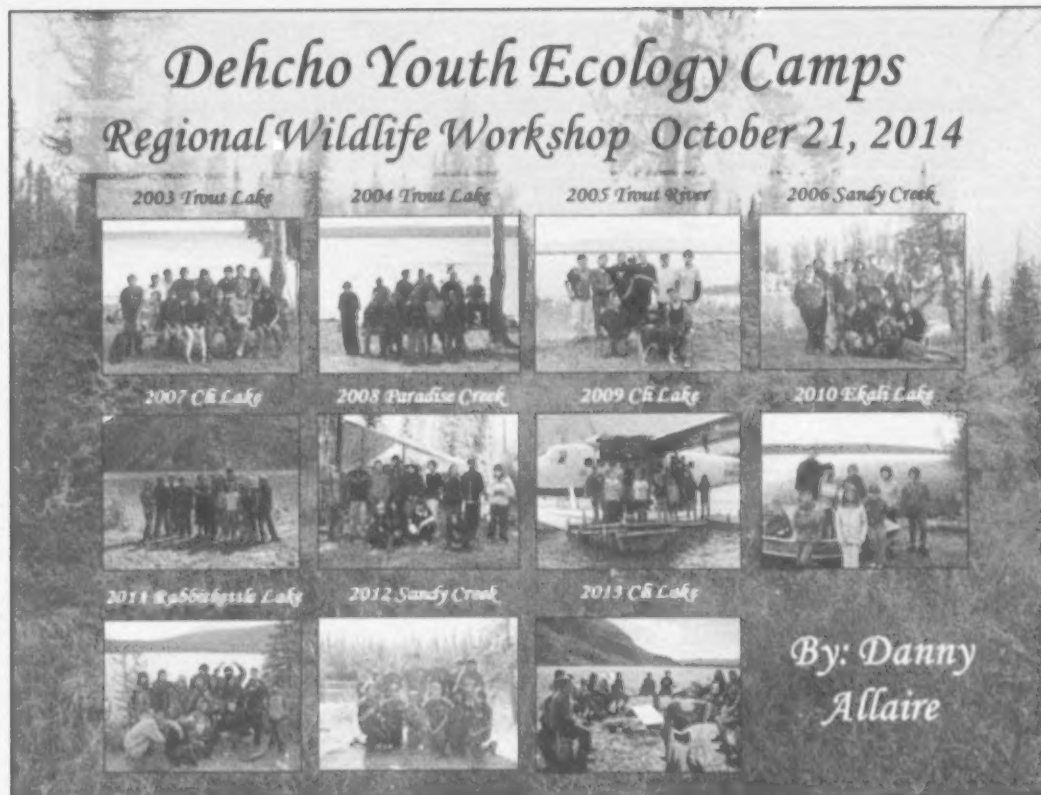


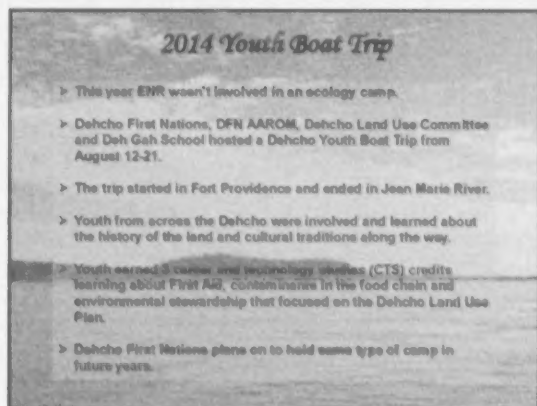
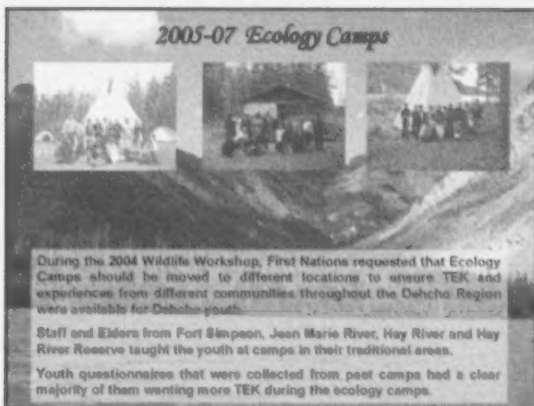
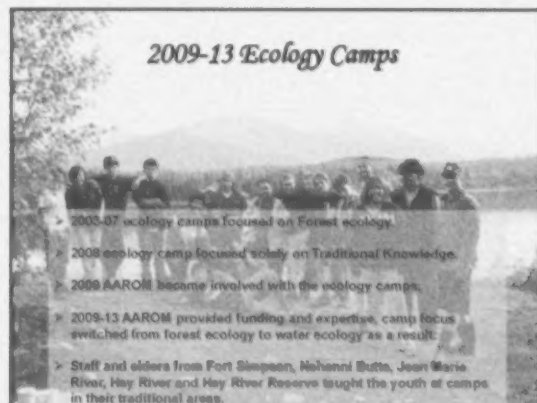
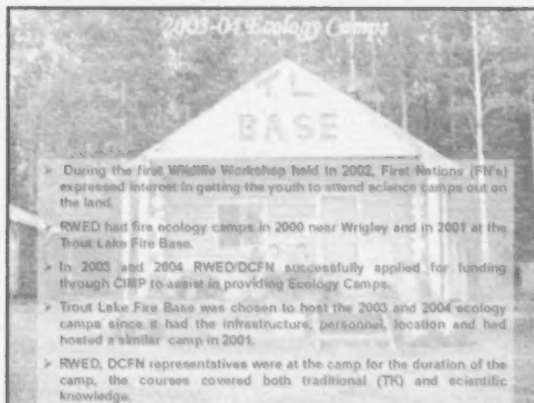
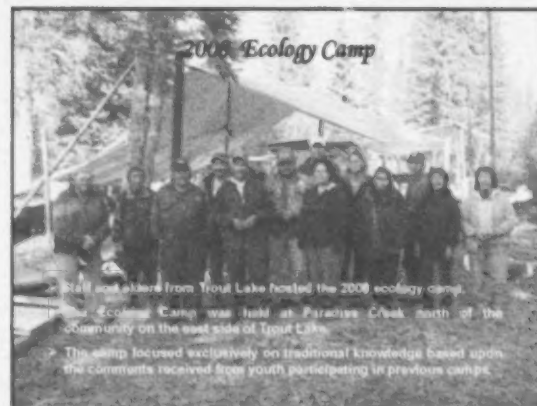
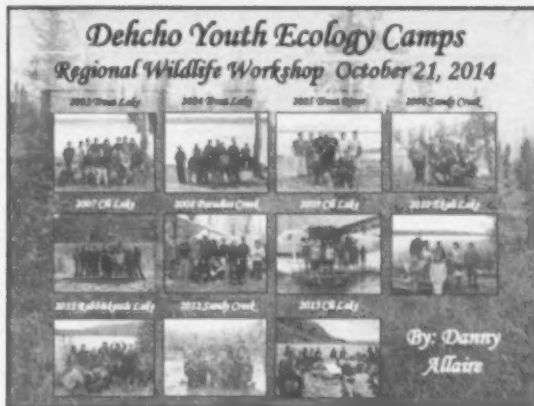


Appendix 2.

Dehcho Youth Ecology Camps/Pilot Trail Camera Program

Presented by Danny Allaire, ENR Fort Simpson





Appendix 3.

Dehcho Caribou Program

Presented by Nic Larter, ENR Fort Simpson

A poster for the Boreal Caribou Program. The background is a black and white photograph of a forest with several caribou silhouetted against a lighter sky. The text is overlaid on the image. At the top, the title 'Boreal Caribou Program' is written in a large, elegant serif font. Below it, a list of topics is presented, each preceded by a diamond-shaped bullet point. The list includes 'Program Update', 'Population Vital Signs', 'Program', 'Past Two Years', 'Interjurisdictional Co-operation', 'Dehcho Boreal Caribou Working Group', and '15th North American Caribou Workshop'. At the bottom, the text 'Dehcho Wildlife Workshop' is enclosed in a light-colored rectangular box, and below that, the date 'October 21, 2014' is also in a similar box. A small logo is visible in the bottom right corner of the poster.

Boreal Caribou Program

- ❖ *Program Update*
- ❖ *Population Vital Signs*
 - ❖ *Program*
 - ❖ *Past Two Years*
- ❖ *Interjurisdictional Co-operation*
- ❖ *Dehcho Boreal Caribou Working Group*
- ❖ *15th North American Caribou Workshop*

Dehcho Wildlife Workshop

October 21, 2014

Boreal Caribou Program

- ❖ Program Update
- ❖ Population Vital Signs
- ❖ Program
- ❖ Past Two Years
- ❖ Interjurisdictional Co-operation
- ❖ Dehcho Boreal Caribou Working Group
- ❖ 15th North American Caribou Workshop

Dehcho Wildlife Workshop

October 21, 2014

Vital Signs Over the Entire Study

- ❖ Average home range size is 2990 km² (n=52).
- ❖ High pregnancy rate and calving; 93% of 289 calving events produced a calf based upon movement data; 92% (115/125) based upon blood serum.
- ❖ Most individual caribou calve at close to the same date each year; some caribou have calved in the same area each year, while others have not. (Based upon caribou with 4 birth locations).
- ❖ One female was pregnant at 16 years.
- ❖ Adult female survival from 2005/06 to 2013/14 is 78%; one female died at 17 years.
- ❖ An average of 35.7 calves/100 adult females observed during the March surveys; this estimates recruitment.
- ❖ Average rate of increase (λ) over past 9 years is 0.97; a stable population has a value of 1.00.

Calving Events

	Had Calf	No Calf	Equivalent
2004	9	0	0
2005	14	3	0
2006	16	1	1
2007	26	3	0
2008	20	1	2
2009	10	0	1
2010	20	1	2
2011	20	0	0
2012	27	8	0
2013	31	2	0
2014	31	0	0
Total	201	15	3

Wearing a collar does not seem to have stopped caribou from getting pregnant or bringing calves to term.

Dehcho Boreal Caribou Program

- ❖ Delegates at previous workshops and the Dehcho Boreal Caribou Working Group (DBCWG) want to continue with this study.
- ❖ The longest continuous study in NT and most of Canada and provides important baseline information about caribou in boreal forests that currently have been relatively undisturbed by human development.
- ❖ The results from ongoing studies in northern Alberta and BC provide information where the boreal forest landscape for caribou has already undergone dramatic changes from resource development; results from these studies may not apply to the NT.



Example of Dehcho landscape



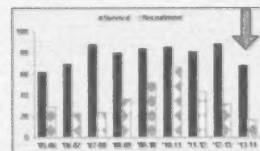
Oil/gas development WNAH



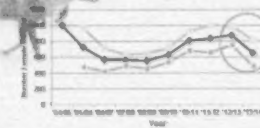
Forestry cutblocks in NEBC

Vital Signs Over the Past Two Years

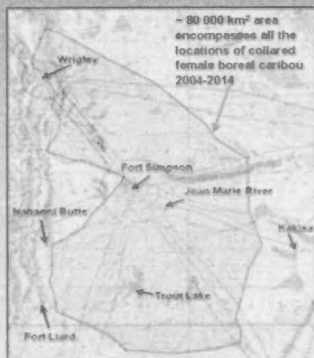
- ❖ 2012/13 and 2013/14 there was low calf recruitment.
- ❖ 2013/14 there was low adult female survival.
- ❖ The combination of low adult survival and low calf recruitment resulted in $\lambda=0.75$ (much <1.00), indicating a population decline.



The estimated number of female caribou in each year of the study starting with a population of 1800 and using the annual rate of increase (λ) calculated for the 9 successive years. The green and red lines represent the upper and lower 95% confidence intervals.



Collared Caribou Range in the Dehcho

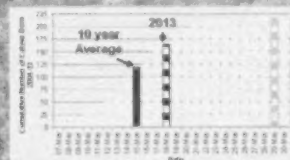


- ❖ ~90 000 km² area encompasses all the locations of collared female boreal caribou 2004-2014.
- ❖ At First Nations request, 10 and 12 collars were deployed February 2013 and 2014, respectively to ensure 230 collared females for the calving season.
- ❖ Collars were deployed throughout the Dehcho in areas requested by our First Nations partners.
- ❖ In 2013 no collars were deployed in Pehtzeh Ki FN traditional areas at their request.
- ❖ Currently 31 active collars.
- ❖ Two collars provided locations for 62 months; 3 have provided locations for 57 months and will release this summer after 65 months.

What Happened? Recruitment

- ❖ In 2012 there was an extended heavy wet snowfall in the middle of the calving season which likely led to the death of newborns.
- ❖ In 2013 calves were born later, and over an extended length of time than on average from 2004-2013.
- ❖ 50% of calves were not born till 18 May, 3 days later than average.
- ❖ Last calf born in 2013 was born later than all but one calf in the study.

- ❖ 15 May the average date that 50% of calves have been born from 2004-2013.
- ❖ 31 May is latest date any calf been born in the study.



The good news is that all 31 female caribou had calves during the 2014 calving season.

What Happened ? Adult Female Survival

- Summer 2013 saw 3 deaths that were not predation.
- Five non-predation deaths were reported in the Hay River Lowlands study area and most of 17 deaths in NEBC that occurred between March and August were non-predation deaths.
- In all cases it looked like the caribou had just curled up and died; those sites that were visited found the collar around an almost intact skeleton.
- Long bone, hair and teeth samples were collected from some carcasses from the Hay River Lowlands and NEBC. Hay River Lowlands samples were sent to WCVN.
- The diagnosis for all HRL animals was starvation; no fat stores. Starvation was linked to most deaths in NEBC, however exposure to a disease that had not previously been reported in boreal caribou was also noted for some animals.
- We have sent some 40 banked blood samples from boreal caribou to test for the prevalence of exposure to this disease in Dehcho caribou.



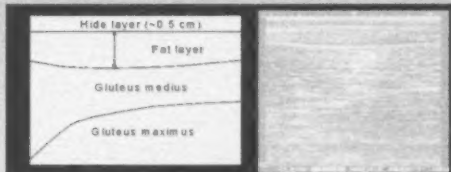
The good news is that in 2014, for the first summer in the study, there were no collared female mortalities.

BC Collared Wildlife in NT

- Sambas K'e Dene Band requested ENR not to collar in the Trainor-Tetcho-Trout Lakes area after the initial collars were deployed there; ENR complied with this request.
- Some caribou collared in NEBC however like to frequent this area, so residents should be aware of this.
- Sharing information between jurisdictions about collared wildlife that crosses borders is important for looking at the complete picture.
- The annual classification survey where we identify whether collared animals still have calves is critical to our study, similarly it is for the BC study.
- BC biologists have requested the opportunity to classify their collared caribou once a year, including those located in southern NT.
- The DBCWG has discussed this request and feel that as long as BC staff notify Trout Lake about the date of the classification survey, that once a year they should be permitted to do a low level classification of their collared caribou as ENR Dehcho does.

Non-Invasive Rump Fat Measure

- Ultrasound measures rump fat from captured caribou.
- Done when deploying collars in N. Ontario, NEBC and NWAB.
- Adds little extra time to collar deployment operation.
- A probe wrapped in a plastic sleeve contacts just the rump.
- Operator would be expected to wear rubber gloves.
- Having fat measures in mid-winter is very useful information.
- Collecting these fat measures has been endorsed by the DBCWG and we would like to try it in February 2015.



Ultrasound image of an animal with moderate amounts of rump fat. The image on the right is directly from the ultrasound and the schematic on the left matches up the hide, fat, and muscle layers.

Wildfires

- Some large fires occurred in 2013 and 2014.
- Collared caribou will provide insight on how or if these fires have affected range use.



BC Collared Wildlife in NT

- Wildlife does not respect jurisdictional boundaries.
- Both wolves and boreal caribou collared by biologists in BC for their studies have roamed into NT for extended periods of time.
- Five or six collared boreal caribou frequent the area to the south and east of Trout Lake.
- Individual collared wolves have spent time as far north as the Arrowhead and Kaldisa River areas.

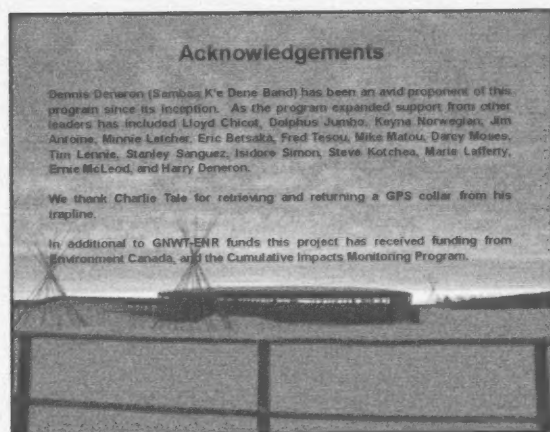
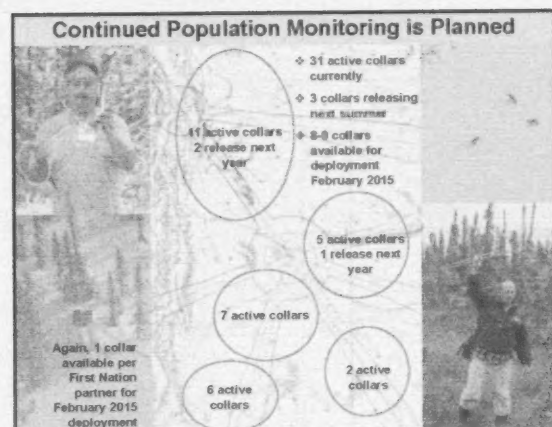
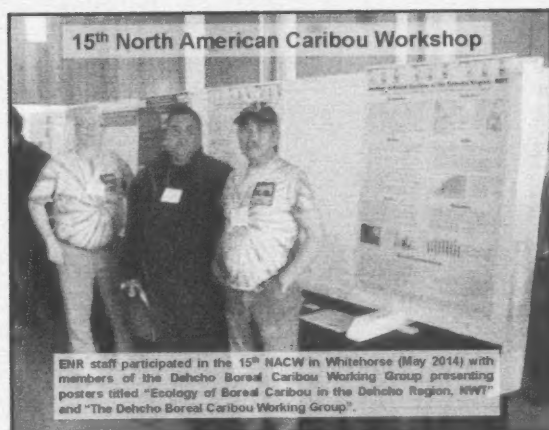


Dehcho Boreal Caribou Working Group

- Since its creation in February 2011 the group meets quarterly either via teleconference or in person.
- Has reviewed and advised on current and proposed boreal caribou research in the Dehcho, and the sharing of boreal caribou location data.



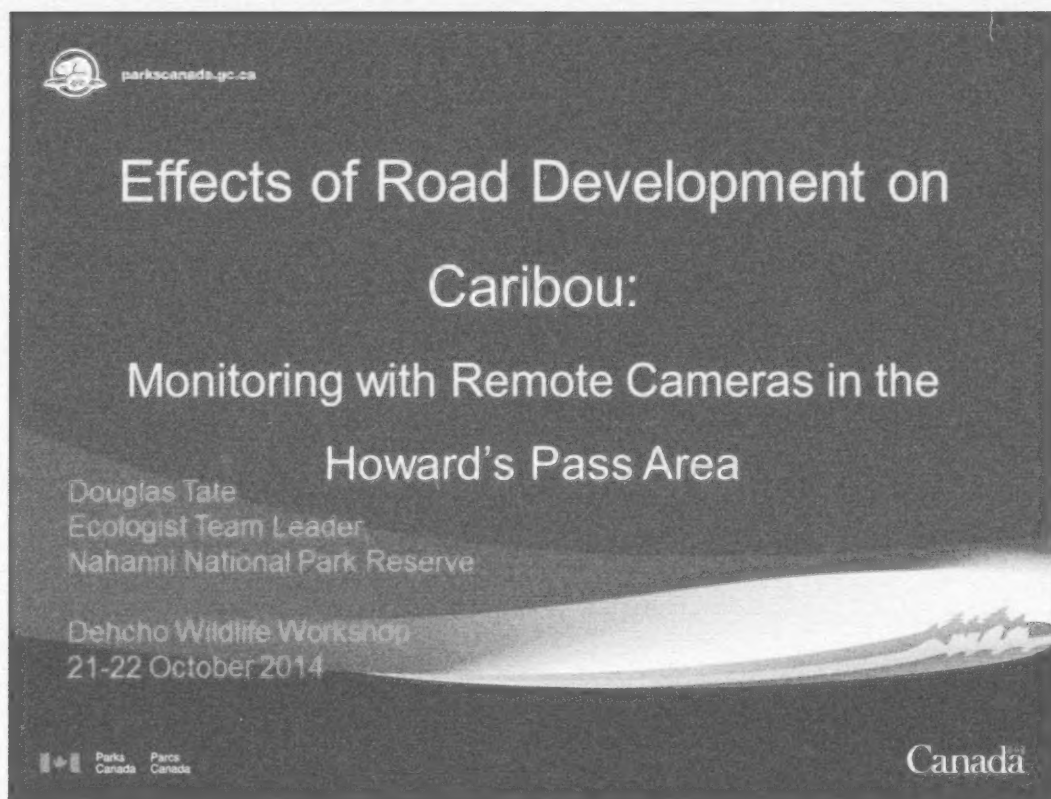
- Has made recommendations to ENR Wildlife on how boreal caribou should be handled, sampled, and measured when captured, the types of collars to be deployed, where, and for how long.
- Has made recommendations to Forest Management Division about areas of important boreal caribou habitat that should be considered for fire suppression.
- Has supported the need for continued monitoring of the Dehcho boreal caribou population, which requires collared female caribou, and working co-operatively with other boreal caribou researchers.



Appendix 4.

Effects of Road Development on Caribou: Monitoring with Remote Cameras in the Howard's Pass Area

Presented by Douglas Tate, Parks Canada Fort Simpson



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Effects of Road Development on Caribou:

Monitoring with Remote Cameras in the Howard's Pass Area

Douglas Tate
Ecologist Team Leader
Nahanni National Park Reserve

Dehcho Wildlife Workshop
21-22 October 2014

 parks.canada.gc.ca 

Caribou Context

- Traditional knowledge and data from collared caribou helped identify four herds or 'groups' of caribou in the South Nahanni watershed.



- Reestone Herd range is mostly in the Sahtu, but enters the northern part of South Nahanni watershed and Dehcho Region.
- South Nahanni Herd winters in park river valleys, summers to the northwest along YT-NWT border.
- Coal River and LaBiche herds (a.k.a. Lower Nahanni) winter in park, travel west and south to summer ranges.

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Parks Canada Mandate

- Protect & present nationally significant examples of Canada's natural and cultural heritage
- Nahanni represents the Mackenzie Mountains Natural Region



Commitments

- To protect, as a first priority, the natural and cultural heritage of our special places and ensure that they remain healthy and whole.
- Protect ecological integrity (health of the land)
- Research and monitoring fit into that part of the mandate and vision

 parks.canada.gc.ca 

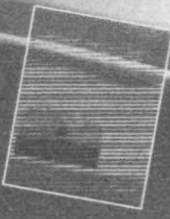
Caribou Concerns

- The South Nahanni herd has shown low calf recruitment in past (less than the recommended 26 calves : 100 cows ratio; Yukon threshold for healthy herd), but surveys suggest population may be stable (2001 - 2009)
- There is increasing industrial development within the range of the South Nahanni herd; in particular, a proposed mining development and access road that passes through calving, summer and rut ranges.
- Howard's Pass Access Road: Chihong Canada Mining Ltd. (formerly Selwyn Resources) is rebuilding over 80 km of access road, passes through ~22 km of NNPR, plus ~24 km in Naáts'ı́ch'oh (new national park in Sahtu).

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Caribou in the Park

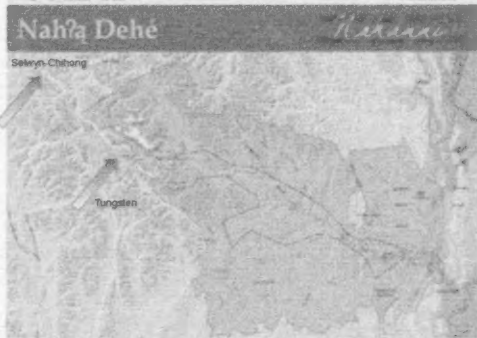
- Caribou in Nahanni National Park Reserve (NNPR) are part of the Northern Mountain Population of Woodland Caribou, listed on the federal Species At Risk Act (SARA) as a species of Special Concern.
- There may be Boreal Caribou in the eastern end of the park, but this has not yet been confirmed.
- Caribou are a high priority species for local communities, and for the Nah'ı́q Dehé Consensus Team (Dehcho First Nations & Parks Canada co-operative management team for Nahanni National Park Reserve). Monitoring caribou is a priority for park management.

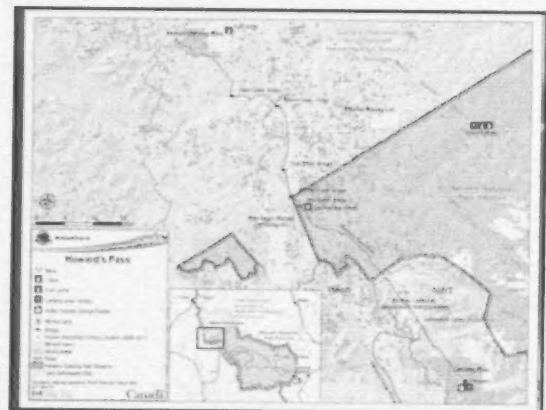
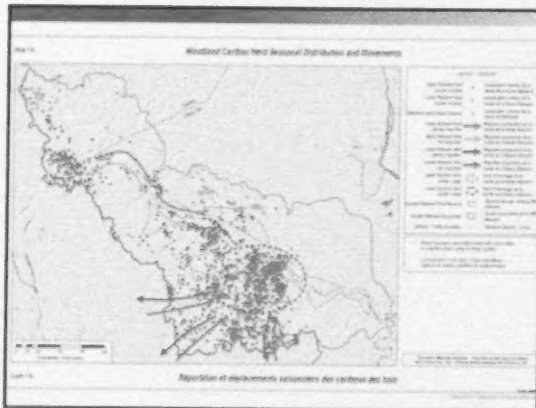
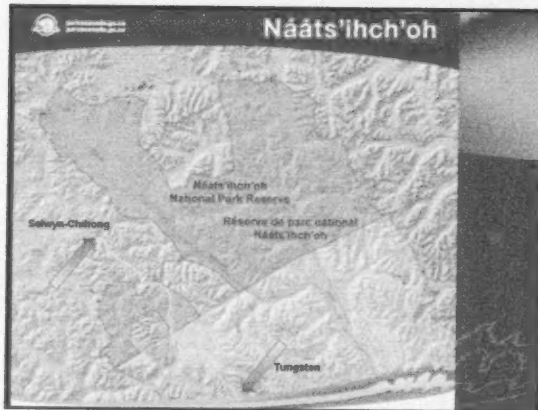


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Nah'ı́q Dehé





Road Effects

- Research in Alberta has shown that caribou tend to avoid areas with industrial development (e.g. Dyer *et al.*, 2001). The Howard's Pass Access Road (HPAR) goes through calving, summer and rut habitat of the South Nahanni herd.
- Local traditional knowledge holders have indicated that caribou do not like industrial developments, and may be disturbed by traffic and noise. Calving locations are considered sensitive areas at that time of year. Easier road access may increase harvest.
- To help understand the potential effects of road development, NNPR has implemented a test study using remote cameras to monitor caribou (and other wildlife) use on and near the road.



Study Design

- The study design was prepared by two university PhD candidates with experience in remote camera monitoring and caribou research, including work in the Sahtu region.
- Proposed research was reviewed by members of the Nah'at' Deh' Consensus Team. Suggestions on camera placement were solicited from members.



Study Design



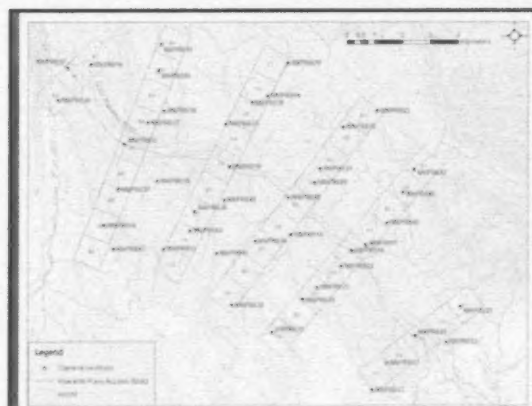
Reconnaissance Mapping & Photo 2013

- Design called for camera placements aligned in six transects perpendicular to the road corridor.
- Camera 'traps' would capture movements on the road, and at specified distance intervals from the road (up to ~4km away).
- The first year of imagery will be at lower level of road use; images from subsequent years can be compared to see if increased traffic results in any change in caribou use of the area.



nationalnaturalresources.gov

Reconnaissance Mapping & Photo 2013



Remote Cameras

- Reconyx brand cameras were used, with lithium batteries; the combination is capable of:
 - timed photographs (e.g. 12:00 daily)
 - motion-sensitive triggering: takes photograph when animal walks past
 - taking 1 to 5 images per trigger
 - operation in -40°C temperature
 - more than 1 year of life
 - night photographs (infrared flash, not visible to animals)
- Cameras were set to take one photograph per day (12:00 pm) and for motion-sensing. Five images were taken at each trigger to improve chance of being able to identify wildlife in the photographs.



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Reconnaissance Mapping & Photo 2013

The Pickup – What we Found



- Cameras were revisited in July 2014 to collect memory cards, install new cards, and replace batteries.
- Two cameras were replaced; one pulled open by bear, and one with malfunction of the memory card slot.
- Three additional sites needed to have cameras reset, either came off of tree, or post knocked over.
- Some had issues with taking many pictures with no wildlife – tried pruning brush to reduce false triggers.



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Reconnaissance Mapping & Photo 2013

Camera Site Selection



- A helicopter was used to survey the grid cells and locate a suitable wildlife trail; then camera was deployed.
- One camera was placed within each grid cell within one of the six transects.
- Cameras were attached to trees where available, or on signposts when required (e.g. in treeless alpine areas).
- In total, forty-four (44) of these remote cameras were placed in July and August 2013 in the vicinity of the Howard's Pass Access Road, in northwest NNPR.



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Reconnaissance Mapping & Photo 2013

What We Saw

- Cameras worked well overall.
- Some cameras became buried in snow for late winter months.
- Many images collected of several wildlife species including numerous caribou.
- Other species included Moose, Wolf, Fox, Grizzly Bear, Marten, Wolverine.
- Some bird species such as Willow Ptarmigan and Northern Harrier.



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Reconnaissance Mapping & Photo 2013

Results

- At least 34 cameras had one or more images of caribou.
- Caribou were recorded at all distances from the road (0 – 4 km).
- A lot of caribou activity in October, some images into December. More activity again in April & May.
- Fits the expected pattern of caribou migration in the area.
- Too early to draw any comparisons or conclusions on road effects (1 year of images) on caribou or other wildlife.







Mahsi Cho

- NNPR Staff and Nah 2a Dehé Consensus Team members involved in and supporting this work
- Government of the Northwest Territories, Environment & Natural Resources
- Dehcho First Nations
- Community representatives
- Thank you for the chance to talk today about some of the work going on in Nahanni National Park Reserve

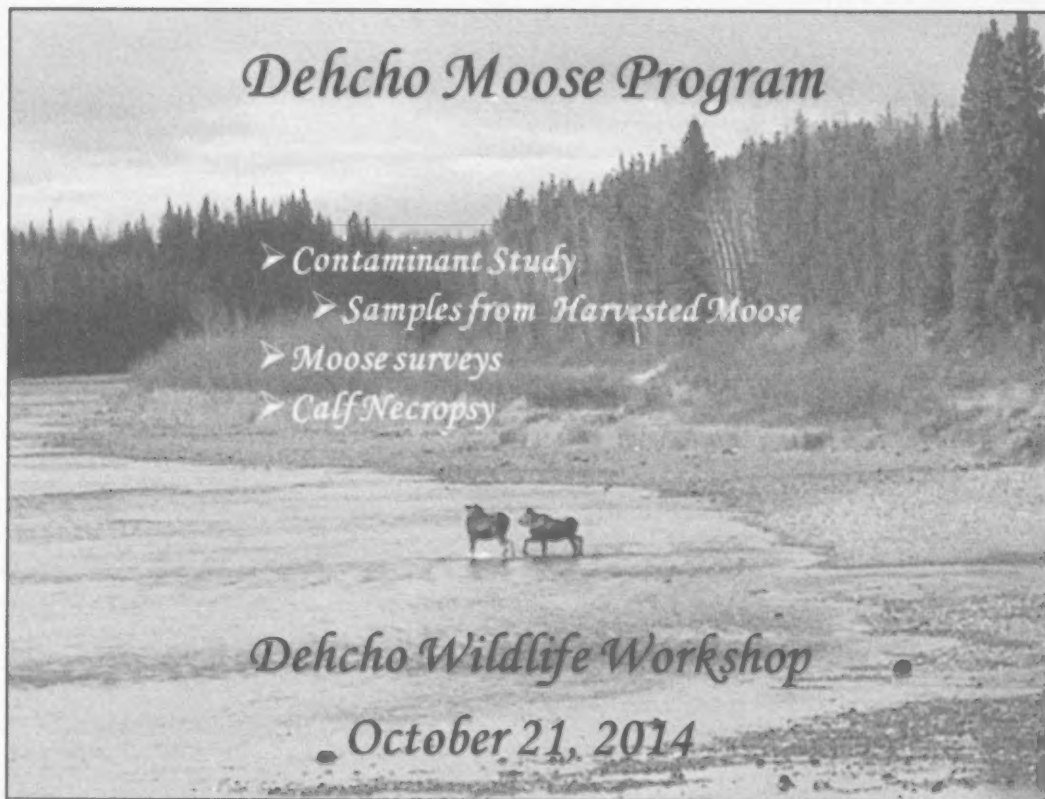


www.nahanni.ca

Appendix 5.

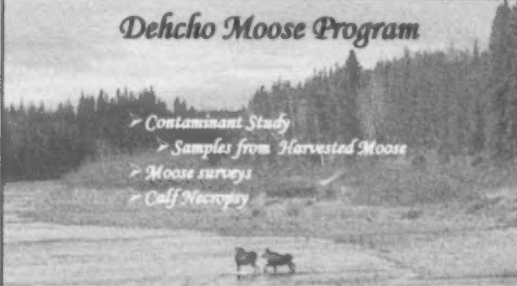
Dehcho Moose Program

Presented by Nic Larter, ENR Fort Simpson



Dehcho Moose Program

- > Contaminant Study
- > Samples from Harvested Moose
- > Moose surveys
- > Calf Necropsy

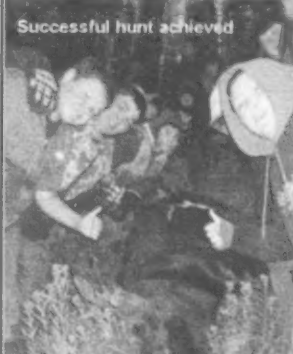


Dehcho Wildlife Workshop

October 21, 2014

Front cover 2 Oct. 2014 Dehcho Drum Article in 15 Aug. 2014 Dehcho Drum

Successful hunt achieved



Lack of samples hindering study

More moose kills needed to determine health of population in the Deh Cho

We need to check contaminant levels in moose again....2012 workshop



- > ENR should collect biological samples from harvested moose.
- > Sample kits will be forwarded to band offices, and available at ENR.
- > ENR will reimburse hunters \$75 for complete kit of samples.
- > ENR will not require kidney samples from all harvested moose.
- > ENR especially encourage hunters from Sambaa K'e to provide samples.

LOST!?

An educational opportunity
Combining traditional and scientific knowledge
No disrespect to the moose for providing food and information

 Front tooth – tell age	 Poop pellets – information on disease and parasites
 Bone marrow fat – indicates health	 Muscle – tells levels of radionuclides and of many contaminants
 Liver – tells levels of persistent organic pollutants (like DDT) and of many contaminants	
 Kidney – tells levels of many contaminants (like cadmium, lead, mercury) + fat indicates health	

- > We all wanted to know if the levels of cadmium had changed since the 2004-07 study when a consumption advisory was issued.
- > Moose remained a healthy food choice; you get more cadmium from smoking than from eating moose.
- > ENR provided at least 100 sample kits over the past 18 months, but had only 10 sets of samples.
- > For a successful study ENR had hoped to have at least as many harvested moose sampled as for the previous study.

COUNTRY FOODS ARE HEALTHY TO EAT

Continuum in Health: balance is including vegetables

At the request of Dehcho First Nations, ENR collected moose organs and skin to determine levels of cadmium and other contaminants present. Residents of the Dehcho region are encouraged to eat moose. Samples from 10 moose from the Dehcho region have been collected.

Contaminant levels are low in the environment. Moose is a healthy food choice. In the Dehcho region, moose is a staple food. It is important to eat moose in moderation. Moose from both the Dehcho and the Dehcho region can be eaten. Moose from both the Dehcho and the Dehcho region can be eaten. Moose from both the Dehcho and the Dehcho region can be eaten.



Small weight = 1 kg of apples or 1 kg of apples



Large weight = 1 kg of apples or 1 kg of apples

Public Health Advisory

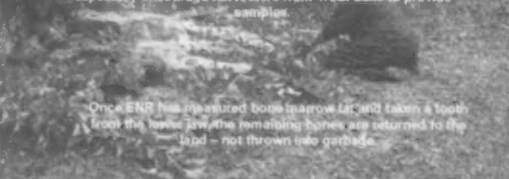
Advisory: Please do not consume moose or other country foods if you are pregnant or nursing, or if you are a child. Please do not consume moose or other country foods if you are pregnant or nursing, or if you are a child. Please do not consume moose or other country foods if you are pregnant or nursing, or if you are a child.

HOWEVER

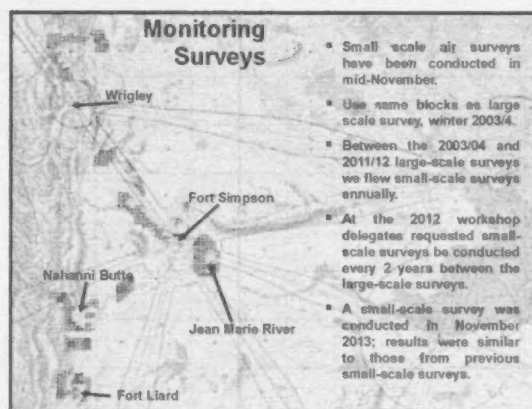
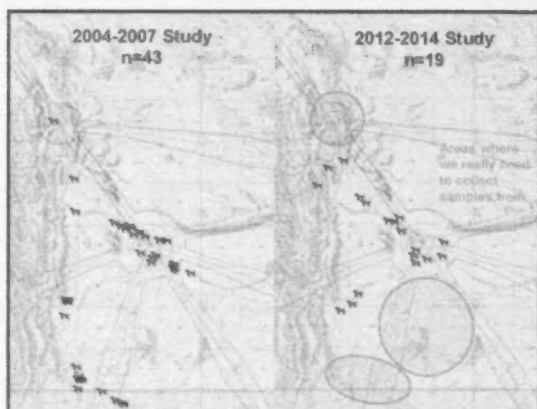
The world must have spread because since a week after the TSS samples hunt, and Thanksgiving we received samples from  harvested moose.

Now 19 in total but goal is 45-50

Please keep providing samples throughout the winter, and especially encourage harvesters from Trout Lake to provide samples.



Once ENR has measured bone marrow fat and taken a tooth from the head, the remaining bones are returned to the land – not thrown into garbage.



Ours is a timely study and especially the need for more samples.
Results recently announced from Quebec study (24 moose sampled).

- News story indicated that no definite conclusions could be drawn.
- Further in the story it indicated that a Cree Health Board study showed smoking to be the biggest factor in human cadmium levels and encouraged Cree to continue to eat traditional food; BUT LOOK AT THE TITLE OF THE STORY!

CBC NEWS | North

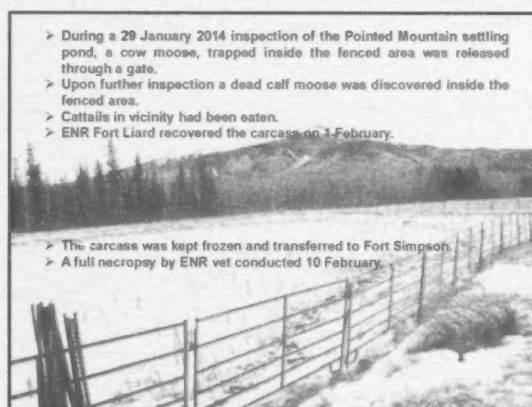
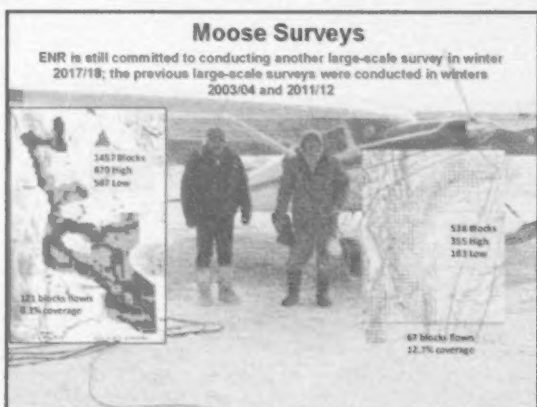
Don't eat moose organs: Quebec health agency

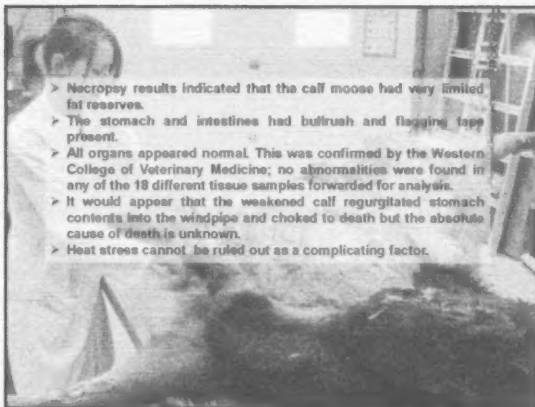
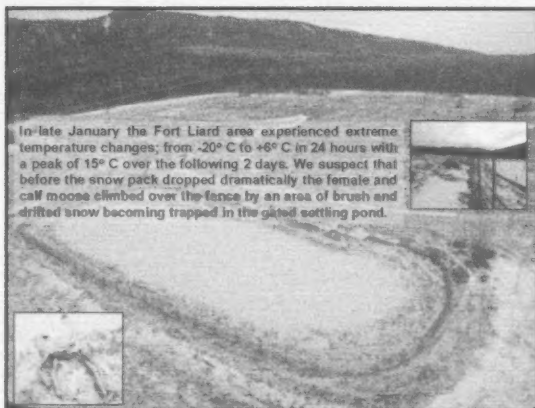
Cadmiun found in samples collected last fall by Quebec's health agency

- A small-scale survey is still planned for November 2015.
- The moose contaminant study requires at least a doubling of the number of samples collected so far and the required analyses over the next fiscal year.
- ENR had anticipated having more samples and more analyses completed by now.

Funding for next year is going to be especially tight partly from the costs of fighting wildfires.

Moose funding received next year I plan to prioritize to the contaminant study.

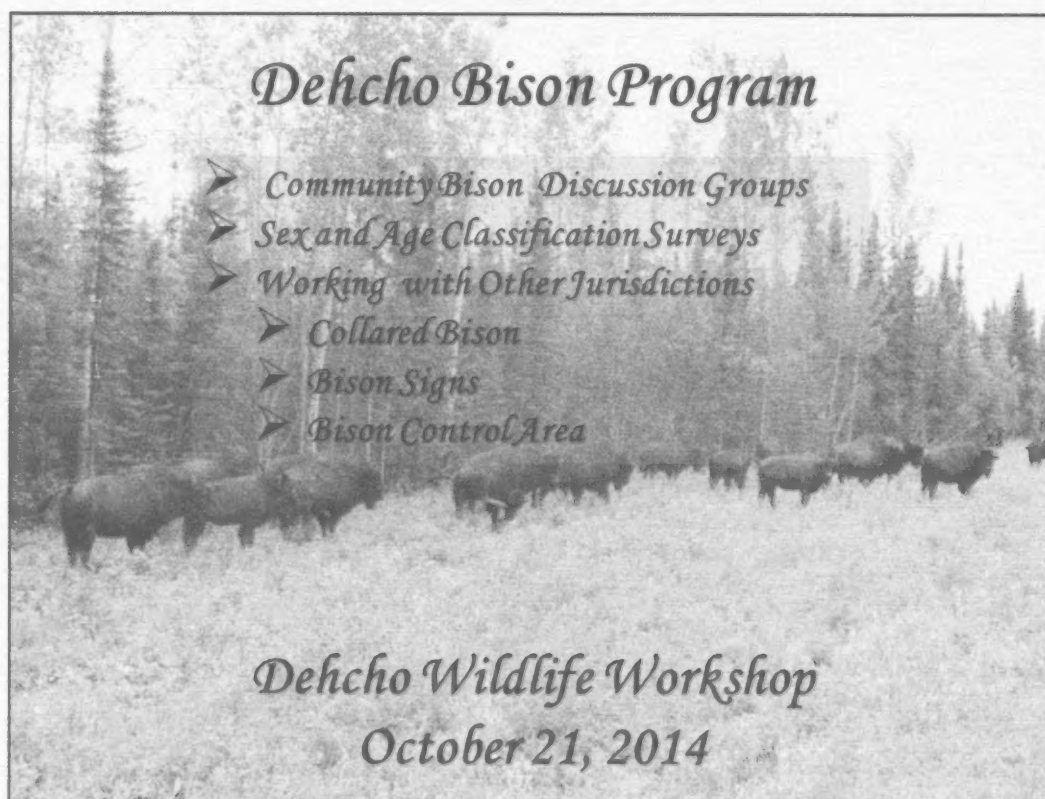




Appendix 6.

Dehcho Bison Program

Presented by Nic Larter, ENR Fort Simpson and Karl Cox, ENR Fort Smith



Dehcho Bison Program

- Community Bison Discussion Groups
- Sex and Age Classification Surveys
- Working with Other Jurisdictions
- Collared Bison
- Bison Signs
- Bison Control Area

Dehcho Wildlife Workshop

October 21, 2014

Classification Survey Results for 13 years

	2002	2003	2004	2005	2006	2007	2008
# bison classified	131*	154	137	138	167	164	161
# calves/100 females	20	56	42	28	47	41	38
# yearlings/100 females	17	10	31	26	25	20	28
# mature males/100 females	48	50	40	50	72	52	56

	2009	2010	2011	2012	2013	2014
# bison classified	125	153	212	133	165	141
# calves/100 females	43	36	43	65	46	33
# yearlings/100 females	27	29	18	10	37	24
# mature males/100 females	51	52	40	53	41	64

* Included group of 42 classified at Beaver Camp prior to survey

Community Wood Bison Discussion Groups

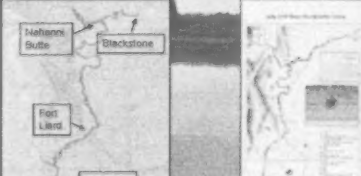
- Groups formed in 2012 as part of the NWT Bison Strategy to work together on management planning for the Nahanni wood bison population.
- Have had two meetings/year.
- Common discussion topics/themes have been:
 - the need for another population survey as soon as possible and as accurate an estimate as possible,
 - bison in communities, on airstrips and damaging property,
 - bison harvesting under the annual quota of 7 males
- A first draft of the management plan is anticipated in 2015.

Bison Deaths

- Recently two male bison have been discovered dead during the rut as a result of goring wounds most likely from fighting.
- Most other known deaths have been from motor vehicle accidents, drowning events, mortalities, and bison harvested under quota.
- Unreported drownings likely occur annually, more in years with high water and flooding.
- Given the small population size, the results of classification surveys, and the known deaths a rapid increase in population size is unlikely.

Sex and Age Classification Surveys

- Annual, started in 2002; 2009-2013 with biologists from BC and/or YT.
- Cover the Liard and South Nahanni Rivers, usually north from Sandy Creek to Nahanni Park and Blackstone River; 2-3 days long.
- Conducted in mid-July when bison frequent sandbars and the shoreline avoiding heat and insects.
- Survey tracked by GPS, with waypoints recorded for all observations.
- Maps of observations provided to Ache Dene Koe and Nahanni Butte Dene Bands.



Working with Other Jurisdictions

- BC/YT staff have participated in ENR bison surveys 2009-2013.
- In 2013 ENR assisted with the BC classification survey of the Norquest population which resides along the Alaska Highway.
- ENR staff were instrumental in the success of classifying the greatest number of animals of the Norquest population.
- Such joint ventures ensure consistency in bison classification and methodologies between agencies.



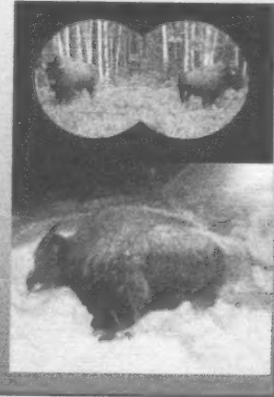
Collared Bison

- In late 2013 the last two GPS collars on female bison stopped providing location information; the location data are being analyzed to determine areas of high use in the range.
- We planned on deploying an additional 2-3 collars this year prior to the scheduled March 2016 population survey; we had permits from BC and YT in case bison were located outside NT.
- A combination of factors prevented us from deploying collars during the 2014 classification survey including staff and equipment access to the area and >30°C temperatures.



- We still plan on deploying the 3 collars we have in hand and hope to collar additional animals prior to the 2016 survey.

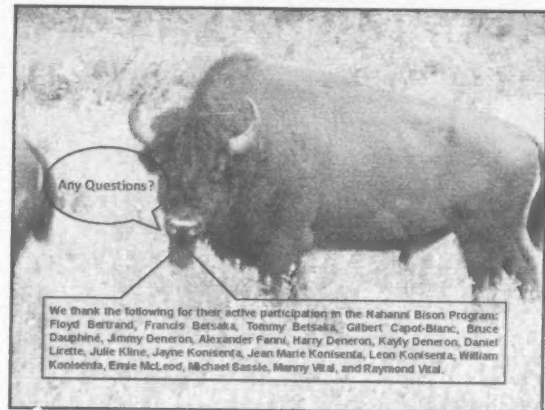
- To make sure there are no bison in the BCA, ENR flies patrols of the area.
- We also rely on the public to notify us if they see any bison in the area.
- January 2014, bison were reported feeding near Axe Handle Creek.
- Staff from Ft. Providence shot and butchered a bison from the area; the meat was distributed locally.
- Subsequent air surveys did not locate bison in the area.



Bison Signs



- Bison vehicle collisions rare on Highway 7 until fall 2004.
- DOT erected signs in areas suggested by ENR in 2005.
- Since 2005, the range of the bison has increased NE to Poplar River, a number of the small original signs are no longer present and vehicle collisions continue.
- ENR has been working with DOT to increase the number of small signs and have large signs by Poplar River and the BC border as a public safety issue.
- Neighbouring jurisdictions have copied our large sign for consistency; we hope to copy the BC small sign which looks more like a bison.
- We need to remind motorists that bison frequent Highway 7 south of the Poplar River and to drive accordingly.



We thank the following for their active participation in the Nahanni Bison Program: Floyd Bertrand, Francis Betsaka, Tommy Betsaka, Gilbert Capot-Bianc, Bruce Dauphine, Jimmy Deneron, Alexander Fanni, Harry Deneron, Kayly Deneron, Daniel Lorette, Julie Kline, Jayne Konsenta, Jean Marie Konsenta, Leon Konsenta, William Konsenta, Ernie McLeod, Michael Sassie, Manny Vital, and Raymond Vital.

Bison Control Area

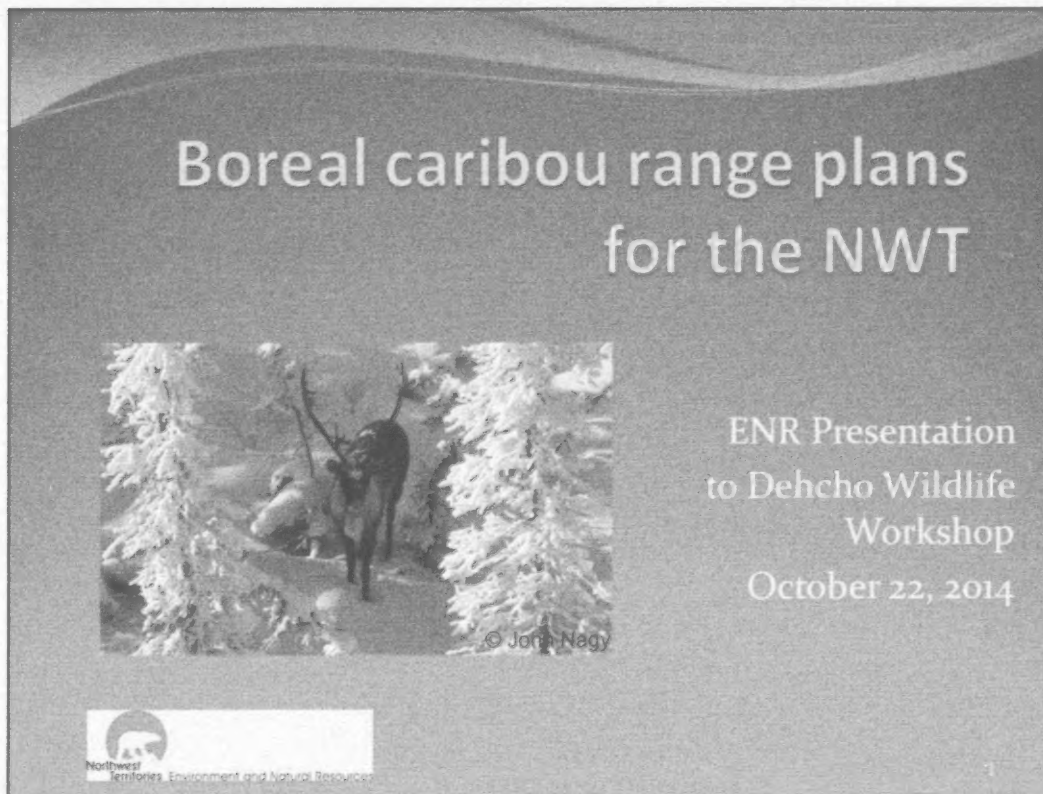
- Created in 1987 to provide a buffer to protect the healthy Mackenzie and Nahanni bison populations from the populations around Wood Buffalo National Park that have brucellosis and tuberculosis.
- Any animals found in this area are removed.
- You will have seen the signs along the highway.



Appendix 7.

Range Management Planning for Boreal Caribou in the Southern NWT

Presented by James Hodson, ENR Yellowknife



Boreal caribou range plans for the NWT



ENR Presentation to Dehcho Wildlife Workshop
October 22, 2014

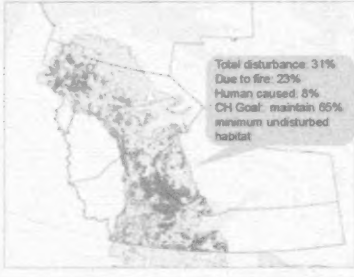


As of 2011, objectives are met: self-sustaining and 69% undisturbed habitat

'Undisturbed' =

- ✓ Not burned in past 40 years
- ✓ >500m from anthropogenic footprint

local study area trends consistent with predictions in the recovery strategy




Status

- Listed as threatened under Federal and Territorial Species at Risk Acts
- Habitat driven listings – landscapes with more habitat disturbance = more predation



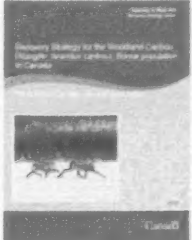

Disturbance as of 2013

NT Range:
Disturbance:
24.6% Fire
7.8% Human
30.8% Total

Undisturbed habitat:
69.2%




National Recovery Strategy – objectives



- Maintain or achieve self-sustaining population throughout current distribution
- Protect: 65% of boreal caribou habitat must remain undisturbed - legally required.



Disturbance as of 2014 (preliminary)

NT Range:
Disturbance:
27.3% Fire
7.8% Human
33.4% Total

Undisturbed habitat:
66.6%

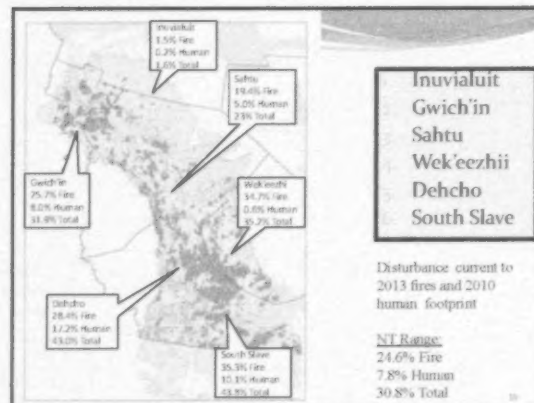
Note – preliminary 2014 fire perimeters based on MODIS satellite fire detections



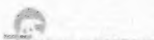

Range plan

- Describe how NWT range will be managed to maintain a minimum of 65% undisturbed habitat in perpetuity
- Range plan should tell us *where* and *how* this habitat should be maintained
- Location of undisturbed habitat will change over time given dynamic nature of the boreal forest
- Really a plan for managing the cumulative effects of natural and anthropogenic disturbance

NEEDS INPUT FROM CO-MANAGEMENT PARTNERS!



Guidance document



Goal of regional plans

- Maintain OR achieve 65% undisturbed habitat
- Balances responsibility – north not meant to save south
- In regions with <65% undisturbed habitat
 - Show progress towards target every 5 years
 - Achieve within 50-100 years

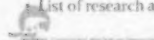


Divide into 6 regional plans. Once combined, have NWT wide plan.



Regional Range Plans

- Developed collaboratively (community workshops, one-on-one community discussions, etc.)
- 5 year planning horizon
- Specifics
 - Current assessment of the region
 - Goal of plan (achieve 65% or maintain min. 65%)
 - Map outlining areas to protect from disturbance over next five years
 - List of tools to ensure protection
 - Long-term projection of habitat supply (5-yr intervals for next 50-100 yrs)
 - List of research and monitoring questions



Which areas to protect?

- Biophysical attributes required by caribou
- Areas preferred by caribou
 - Habitat selection studies
 - Traditional and Local Knowledge studies
- Age – areas not disturbed by fire or human development within last 40 yrs
- Size – caribou tend to do better in large (>500 km²) patches of undisturbed habitat
- Likelihood of future disturbance (e.g. development or fires)
- Areas that maximize connectivity within the region, and throughout NWT range



Environment and Natural Resources

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Need enough low, medium and/or high importance areas to maintain or achieve 65% undisturbed habitat at the regional level



Environment and Natural Resources

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Rank areas

Non-Habitat	• Areas that are unlikely to ever be used by caribou
Low importance	• Lots of linear features • Recently disturbed (<30 yrs) • Small patch size (<200 km²) • Rarely used by caribou • high likelihood of future disturbance
Medium importance	• Some linear features • 30-40 yrs since last disturbance • Medium patch size (200-500 km²) • Commonly used by caribou • Medium likelihood of future disturbance
High importance	• Few linear features • >40 yrs since last disturbance • Large patch size (>500 km²) • Known high use area by caribou • Low likelihood of being disturbed

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Tools to protect areas over the next five years

- Surface/sub-surface protection - Land use plans, Protected Areas Strategy, community conservation areas,
- Fire Management
- Environmental Assessment – MVRMA, regulations and guidelines
- NWT SARA
- Wildlife Act
- Federal SARA



Environment and Natural Resources

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Hypothetical Example



Environment and Natural Resources

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Fire management

Non-habitat	Low importance	Medium importance	High importance
Adhere to current fire management policy	Adhere to current fire management policy	Adhere to current fire management policy	Classify high importance areas as a value at risk; manage fire in these areas to best extent possible



Environment and Natural Resources

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Development

Non-habitat	Low importance	Medium importance	High importance
Achere to project permit conditions; EA commitments and measures	Achere to project permit conditions; EA commitments and measures	Achere to project permit conditions; EA commitments and measures	Recommend that project should not be approved unless the developer can demonstrate no net loss of such areas over the life of the project (e.g., some areas currently classified as medium importance will become high importance areas to replace those that are lost to development).
	Recommend project should not be approved if, in the long term, project will compromise: Maintaining or achieving 65% undisturbed habitat at the regional level. Maintaining sufficient amount of large (>500 km ²) undisturbed patches		



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Next Steps

- Winter 2014-15: Workshops with communities, DBCWG, renewable resource boards and councils, and other government departments to:
 - Identify areas important to boreal caribou
 - Refine range boundaries
 - Identify indicators to monitor local population trends and success of regional plans



30

Updating regional plans and the overall NWT wide-plan

- Plans will be reviewed and updated every 5 years
- Will account for:
 - New fires
 - New human disturbance features
 - Old fires and temporary human disturbance features coming back on-line as boreal caribou habitat
 - Updated information about caribou distribution, habitat selection and population trends



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Regional Status (as of 2013)

Region	Local boreal caribou trends	% undisturbed habitat	Disturbance potential in boreal caribou range
ISR	Increasing	98.4	Low
GSA	Increasing	68.1	Low
SSA	Unknown	77.0	High
Dehcho (administrative)	Stable	57.0	High
South Slave	Stable to Declining	56.2	High
Wek'eezhii	Unknown	64.8	Medium



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Research and Monitoring

- Population monitoring (ongoing)
- Habitat selection and use (ongoing)
- Updating/improving disturbance maps and keeping track of future disturbance
- Understanding natural disturbance regimes, disturbance patterns and their impact on boreal caribou (ongoing)
- How long does it take for disturbed areas to become functional habitat for caribou?
- Population structure (genetics)



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Suggested order

- First wave:
- South Slave
 - Dehcho
 - Sahtu Settlement Area (SSA)
- Second wave:
- Inuvialuit Settlement Region (ISR)
 - Gwich'in Settlement Area (GSA)
 - North Slave (Wek'eezhii)



34

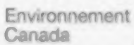


Appendix 8.

Bird Monitoring in the Dehcho

Presented by Rhiannon Leshyk, Canadian Wildlife Service, Yellowknife

 Environment
Canada

 Environnement
Canada





Bird Monitoring in the Dehcho

Dehcho Wildlife Workshop
Fort Simpson, NT
Rhiannon Leshyk
Canadian Wildlife Service
October 21-22, 2014

Environment Canada / Environnement Canada

Canada

Bird Monitoring in the Dehcho

Dehcho Wildlife Workshop
Fort Simpson, NT
Rhannon Leashyk
Canadian Wildlife Service
October 21-22, 2014

Why Birds?

- Environment Canada has an obligation under the Migratory Bird Convention Act
- Generally sensitive to environmental change
- Indicator of changes in other populations
- Economically important – pest control, pollinators
- Some species are hunted
- They sing! Easy to count compared to animals that hide

Spectrogram – visualization of bird song

Environment Canada / Environnement Canada

Page 4 – January 2, 15

Canada

Canadian Wildlife Service's Mandate

- Leader for the conservation of Canada's wildlife
- Protect species at risk
- Plan and rehabilitate significant habitat
- Manage protected areas
- Conserve migratory bird populations



Environment Canada / Environnement Canada

Page 2 – January 2, 15

Canada

Conserve Migratory Birds

- 250+ species of birds in the NWT (songbirds, shorebirds, geese, ducks, hawks, eagles, gulls, terns etc.)
- CWS monitors migratory bird populations
- The Forest Bird Program monitors migratory boreal forest birds



Bay-breasted Warbler Lesser Yellowlegs Red-necked Grebe

Environment Canada / Environnement Canada

Page 3 – January 2, 15

Canada

Forest Bird Program

- Study forest bird populations in the boreal forest of the NWT
- Increasing coverage of the NWT and Nunavut
- Monitor populations to ensure species conservation



Samuel Hache
Forest Bird Biologist



Rhannon Leashyk
Forest Bird Biologist

Environment Canada / Environnement Canada

Page 2 – January 2, 15

Canada

What's a migratory forest bird?



Resident
12 months
Boreal Chickadee, Prairie Warbler

Migrant
3 months
Belted Kingfisher, Song Sparrow

Legend:
■ Forest (Boreal)
■ Forest (Temperate)
■ Forest (Tropical)
■ Forest (Subtropical)

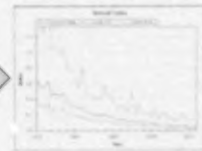
Environment Canada / Environnement Canada

Page 1 – January 2, 15

Canada

Monitoring Measures Change

- Visit the exact same location over multiple years
- Count the number of animals observed
- For birds you count all the birds heard or seen (point count)



Page 7 - January 7, 15

Canada

Fort Liard Long-term Monitoring Program

- 17th year completed in June 2014
- Counted 6982 birds from 76 species
- Visited 255 locations
- 56,000 records in database!



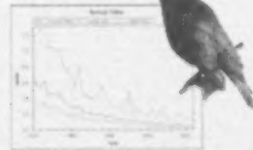
Page 10 - January 7, 15

Canada

What can monitoring tell us?

- How bird populations are changing over time (trends)
- Trends provide clues to how the environment is changing
- Human disturbance, climate change or large natural events (e.g. disease) can all affect a species trend
- Monitoring helps us manage bird populations

Rusty Blackbird
populations have
declined 88% over the
last 40 years.



Page 6 - January 7, 15

Canada

How are the Fort Liard forest birds doing?

- Better than birds in the south

Trend and precipitation	Region		
	Fort Liard	Alberta BBS	Canada BBS
Negative	6	15	20
Positive	12	6	9



- South = more development
- Need more remote boreal studies

How well do regional or national Breeding Bird Survey data predict
regional population trends of an individual site?

Page 11 - January 7, 15

Canada

How are we monitoring in the Dehcho?

Ongoing

- Fort Liard Long-term Monitoring Program (17 years)
- Breeding Bird Surveys (20+ years)
- NWT and Nunavut Checklist - now eBird Canada (17+ years)

PROPOSED

- Edéhzhíe Long-term Monitoring Program
- Community-based Recorder Program

Page 9 - January 7, 15

Canada

Need for Remote Boreal Studies

- Most studies are conducted in southern Canada
- Southern studies may not represent all species
- Need more information on boreal bird populations



Canada

Why do we need another study?

Northwest Territories and Nunavut
(18% of Canada's boreal forest):



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Environnement Canada

Page 12 - January 7, 15

Canada

Proposed Edézhie Long-term Monitoring Program

- October 2014 searched for helicopter landing pads
- Minimal impact to landscape
- All 33 minimal clearing



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Environnement Canada

Page 13 - January 7, 15

Canada

Proposed Edézhie Long-term Monitoring Program



2% of the
NWT boreal
7% of the
Edézhie

Environment Canada
Environnement Canada

Page 14 - January 7, 15

Canada

Bird Monitoring Challenges

- Limited access in the north (no roads)
- Helicopters/planes expensive
- Experienced observers (150+ species sight & sound)
- Short time frame for study (1-2 months, 4 hrs in morning)

How can we increase monitoring given these challenges?



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Environnement Canada

Page 17 - January 7, 15

Canada

What can the Edézhie birds tell us?

- What do pristine boreal communities look like?
- What are the baselines to maintain for the area?
- What are the effects of wintering ground disturbance?
- How is climate change affecting bird populations?
- How do natural disturbance affect bird populations?



Environment Canada
Environnement Canada

Page 15 - January 7, 15

Canada

NWT-wide Programs

- Breeding Bird Survey



- NWT/NU Checklist - now eBird Canada www.ebird.ca



Community-based Recorder Program (Proposed)

Environment Canada
Environnement Canada

Page 16 - January 7, 15

Canada

Community-based Recorder Program

- Autonomous Recording Units (ARUs) in communities
- Record all the *singing* birds in May and June
- No experience necessary!



You can help! Contact samuel.hache@ec.gc.ca



Environnement
Canada

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Canada

Thank you

Questions?



Environnement
Canada

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Canada

Appendix 9.

Separation part of the Solution; Disease Transmission from Domestic to
Wildlife

Presented by Jeremy Ayotte, BC Provincial Coordinator of the Sheep
Separation Program

No Contact in the North

Prevent disease spread from domestic sheep and
goats to Thinhorn sheep in the north

Jeremy Ayotte
Program Coordinator



No Contact in the North

Prevent disease spread from domestic sheep and goats to Thinhorn sheep in the north

Jeremy Avotie
Program Coordinator



Southern Story...

NORTH AMERICAN BIGHORN SHEEP DISTRIBUTION



No Contact in the North

Goal:

Develop "policy" that restricts domestic sheep and goats (farming or packing) from Mackenzie River to Yukon

Reasons:

- Disease spread from contact with domestic sheep has decimated Bighorns in the south
- The impact to Thinhorn sheep will be even worse
- The disease is preventable through separation
- Low farming pressure in NWT means little resistance to new legal policy

DATE	LOCATION	ESTIMATED POPULATION	WILDLIFE	ASSOCIATED DISEASE/POSSIBLE CAUSE
1900-1910	Montana	100	100%	WILD SHEEP FOUNDATION
1910-1920	Montana	100	100%	WILDLIFE FOUNDATION
1920-1930	Montana	100	100%	WILDLIFE FOUNDATION
1930-1940	Montana	100	100%	WILDLIFE FOUNDATION
1940-1950	Montana	100	100%	WILDLIFE FOUNDATION
1950-1960	Montana	100	100%	WILDLIFE FOUNDATION
1960-1970	Montana	100	100%	WILDLIFE FOUNDATION
1970-1980	Montana	100	100%	WILDLIFE FOUNDATION
1980-1990	Montana	100	100%	WILDLIFE FOUNDATION
1990-2000	Montana	100	100%	WILDLIFE FOUNDATION
2000-2010	Montana	100	100%	WILDLIFE FOUNDATION
2010-2020	Montana	100	100%	WILDLIFE FOUNDATION
2020-2030	Montana	100	100%	WILDLIFE FOUNDATION
2030-2040	Montana	100	100%	WILDLIFE FOUNDATION
2040-2050	Montana	100	100%	WILDLIFE FOUNDATION
2050-2060	Montana	100	100%	WILDLIFE FOUNDATION
2060-2070	Montana	100	100%	WILDLIFE FOUNDATION
2070-2080	Montana	100	100%	WILDLIFE FOUNDATION
2080-2090	Montana	100	100%	WILDLIFE FOUNDATION
2090-2100	Montana	100	100%	WILDLIFE FOUNDATION

Challenges to Managing Disease



- Respiratory Disease
 - Brucella (Bacterium) (Bacterial)
 - Chlamydia (Chlamydia) (Bacterial)
 - Spread by nose-to-nose contact with infected sheep
- One contact can result in an entire herd die-off
- Domestic sheep and wild sheep are attracted to each other
- Wild sheep (especially rams) carry out occasional long-distance movements
- Difficult to manage after contact has happened

North Dakota: August 2014



Washington State: October 2014

Policy and Legislation

OUR LAND IS OUR FUTURE

STATION OF INDIGENOUS CHILDREN AND YOUTH COUNCILS

Dr. K. S. Narayana
President
Dr. K. S. Narayana
President

Office of the Indigenous Children
and Youth Councils
August 10, 2010
Kamloops, B.C.

Dr. K. S. Narayana
President
Dr. K. S. Narayana
President

Document No. 100000

Re: Indigenous Health and Social Services and Indigenous Health Services

WHEREAS the Indigenous Health and Social Services and Indigenous Health Services are the most important of the Indigenous Health and Social Services and Indigenous Health Services;

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- Union of BC Indian Chiefs Resolution 2005
- Regional District Zoning (BC Regions)
- Farm Practices Act: The "Right to Farm" Act (Federal)
- Animal Health Act (Federal and Provincial)

Bighorn sheep – Domestic sheep Respiratory Disease

A lot of research...

- Disease transmission
- Immunity
- Vaccines
- Sheep habitat connectivity and movements



But not a lot of action...

- A lot of research...**
- Disease transmission
 - Immunity
 - Vaccines
 - Sheep habitat connectivity and movements



But not a lot of action...

To keep domestic sheep/goats out of “High Risk” areas, we need good maps

- US Forest Service “Risk of Contact” Tool
- Map-based (GIS) tool
- Scientifically defensible
- Standardized
- Support policy makers with good science

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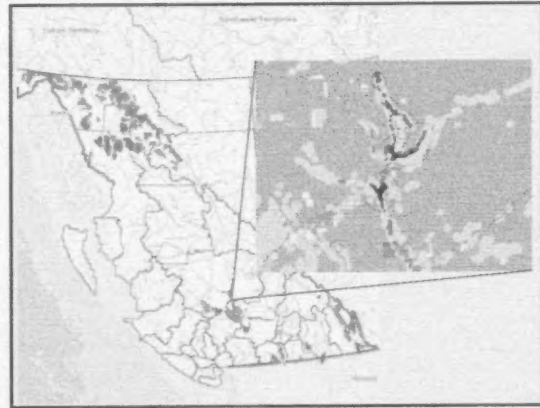
Bighorn sheep disease British Columbia

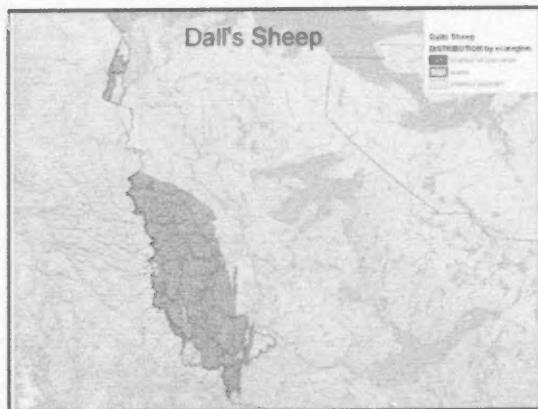
- No enforceable policies or legislation
- Fencing is expensive and not always effective
- Government balances protecting wild sheep while supporting domestic sheep industry



Domestic Sheep

- No enforceable policies or legislation
- Fencing is expensive and not always effective
- Government balances protecting wild sheep while supporting domestic sheep industry





Summary: No Contact in the North



- Increase awareness of the threat of domestic sheep/goat disease
- Develop policy in NWT to prevent contact between Dall's sheep and domestic sheep and goats

2005 Resolution Union of BC Indian Chiefs:

"...support the exclusion of domestic sheep and goats from all areas within and surrounding our territories..."

